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GOD—OR GORILLA

GOD—OR GORILLA

How the Monkey Theory of Evolution Exposes Its Own Methods, Refutes Its Own Principles, Denies Its Own Inferences, Disproves Its Own Case

BY

ALFRED WATTERSON McCANN

Author of "Starving America," "The Failure of the Calory in Medicine," "This Famishing World," "The Science of Eating," etc.

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TO
ALL LOVERS OF TRUTH

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INTRODUCTION

Incredible but True

The world has all but forgotten the "Moon Hoax." Only very old men and women now remember those wonderful discoveries in the moon by Sir John Herschel in his observations at the Cape of Good Hope. The "facts" were first published by Richard Adams Locke in the New York Sun in 1835, as Ernst Haeckel and the Darwinians were preparing to trifle with the human mind in a manner unparalleled in history. The moon facts were so plausibly constructed as to deceive not only the public at large, but many scientific men. So great were the "wonders" that they were published separately in various editions in America and Europe. For forty years men talked about them and as late as 1872 the celebrated English mathematician, Augustus De Morgan, declared ("Budget of Paradoxes," London), that the real author of the hoax was none other than J. N. Nicollet, a French astronomer in the United States.

Of far greater significance and of more enduring influence is the ape-man hoax now scattering its corruptions throughout the world and impressing its deceptions upon the world's "best minds."

Reaching its climax in 1921, the ape-man hoax took the form of a seemingly spontaneous movement to reestablish the theory of man's monkey-origin. Its astounding pretensions are scarcely less remarkable than the strange devices employed to make them impressive, even convincing, to an uncritical and gullible

audience. With a boldness difficult to describe, it employs the arts of the painter, clay modeller and sculptor, producing effects as seemingly plausible as they are actually startling. Graphic contrasts and "resemblances" are featured with an incredible disregard for historical fact in the "reconstruction of progressive series" designed to insinuate well marked evolutionary changes and transitions in the principal stages of man's development from a simian ancestor.

Journalists, popular writers, school teachers and pupils of advanced grades are the chief victims of this weird compound of scientifically flavored catch phrases and extravagantly fabricated skeletal evidence in support of the theory that 500,000 years ago a huge ape, which was not gorilla, chimpanzee, orang or gibbon, became the father of an ape-man who by infinitesimal steps over gigantic periods of time gradually lost his ape character and became the father of modern man.

All the exposed and discredited "missing links" connecting man with his "unknown simian ancestor" are again exhibited as if they possessed an untarnished pedigree.

The exhibitions are wholly devoid of any hint of the truth that would inspire the student to question their authenticity or to challenge their genuineness. On the contrary they are so presented as to impress the novice with the conclusion that here, at last, are the results of years of laborious scientific research.

An utter lack of candor characterizes the printed word by which they are described. The subtle omissions by which the fanciful labels and charts accompanying the exhibits are distinguished have so much significance that the desired effect of plausibility is intensified through their suppression.

As if to confirm the integrity of this grotesque parody on science, eminent names are associated with

it in such a manner as to seem to guarantee to the unsuspecting an assurance of finality.

Astonishing is the contention of well known editors and educators that "the case for evolution has been settled for all time"; that "man's monkey-origin has been accepted by the foremost thinkers of the world"; that "crystallized public opinion has passed favorable judgment upon it"; that to seem to challenge this verdict would be an invitation to all men to condemn them as narrow, uninformed, prejudiced, even ignorant.

Thus it would appear that the very men who are actively engaged in the formation of public opinion are themselves unacquainted with the truth and despite the wide circulation given to the falsehoods are unprepared to scrutinize the bare and well authenticated facts or to pass them into circulation.

That they may be given an opportunity to comprehend the truly ridiculous character of the fictions they have been led to accept as "demonstrated facts," the writer has undertaken to present the case with all its astounding features as they have been acknowledged by the foremost scientists of Europe and America.

Many scientific men will be angry of course, but as they, themselves, are doing the talking and as they, themselves, are quoted by chapter, verse and page, they cannot be angry, *except with themselves.* Some of them will not publicly applaud an exposure which must shake our entire educational system to the core, but many of them will secretly rejoice over this belated indictment of a hoax that has driven scores of students through vistas of morbidity and darkness, unillumined save by false lights which serve merely to create darker shadows, into a tragedy of error that can hardly fail henceforth to misdirect the whole course of their lives.

New York, December 25, 1921.

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GOD—OR GORILLA

CHAPTER I

Making the Piltdown Man

Making the Piltdown man—Unmaking the Piltdown man—"Convincing and irrefutable"—Starting all over—The ape in the picture—Materializing a phantom.

In four glass cases in the Hall of the Age of Man, American Museum of Natural History, New York City, Professor Henry Fairfield Osborn exhibits "evidence" of man's ape-origin. In case No. 2 he has mounted a bust of the Piltdown man conceived and executed by Professor J. H. McGregor. The bust is described as a "restoration," a "missing link," a sort of "side branch of the human family which has left no descendants at all."

As presented to the uninitiated, the Piltdown man is half-ape, half-human. This half-and-half mixture is designed to impress the high school students and their teachers, visiting the Museum in ever increasing numbers, with the conclusion that a creature whose skull-cap is human but whose jaw is the jaw of an ape must, of course, be looked upon as "man half way along his journey from the simian to the human stage."

The Piltdown man is thus an instance of the "evolution" of man from monkey; an instance of "the forming of the human species;" an instance of "descent."

Professor Vernon Kellogg of Leland Stanford University reflects the consensus of modern scientific belief in all instances in which the phrase Natural Selection is used in a specific sense. Examining the Piltdown man we are stunned when, reading his (Kellogg's) "Darwinism Today," 1908, p. 18, we find these words: "Speaking by and large we only tell the general truth when we declare that no indubitable cases of species-forming or transforming, that is, of descent, have been observed; and that no recognized cases of natural selection really selecting have been observed.

"I hasten to repeat the names of the Ancon sheep, the Paraguay cattle, the Porto Santo rabbit, the Artemias of Schmankewitch, and the De Vriesian evening primroses to show that I know my list of classic possible exceptions to this denial of observed species-forming, and to refer to Weldon's broad and narrow fronted crabs as a case of what may be an observation of selection at work. But such a list, even if it could be extended to a score, or to a hundred, of cases, is ludicrous as objective proof of that descent and selection, under whose domination the forming of millions of species is supposed to have occurred."

After a discussion of "the distinctly ponderable character of the anti-Darwinian ranks," he concludes (p. 29) with the following astonishing quotation: "For my part it seems better to go back to the old and safe *Ignoramus* standpoint."

This modern scientific observation, surprising as it may seem to those who persist in loosely characterizing themselves as Darwinians, is marked by extreme candor. Professor Kellogg is not unconscious of the fact that there appears to be considerable evidence that some kind of selection is constantly going on in nature, and that this process in some manner contrib-

Courtesy Zoological Society.
Photograph by Edwin R. Sanborn.

Another view of chimpanzee. Note thumb on "foot" where big toe ought to be, and stump of thumb on hand where a real thumb would be useful.

utes to the preservation of differentiations and variations. He is not ignorant of the phenomenon with which bacteriologists are familiar. For this reason we are compelled to take another look at the Piltdown man in order to arrive at an explanation of the motive behind his extraordinary appearance in the Hall of the Age of Man. Regardless of the vagueness and the complications, to say nothing of the contradictions and the biological stumbling blocks in their path, the "monkey evolutionists" are still tireless in their effort to support the ape-man theory. Driven from anchorage to anchorage they are thus compelled to take a solemn stand on what they call the evidence of palæontology.

Seemingly it is taken for granted that the disgraceful history of the Piltdown man, which we are about to review briefly, has been so far forgotten as to make it safe to present his "restoration" to this generation as a gentleman of quality rather than as the discredited hoax he has been shown to be. Boldness is characteristic of the champions of any theory that appears to hold captive the public mind. Consequently the prominence given to the Piltdown man can be explained only on the assumption that the public mind appears to want this sort of thing and will have it without question despite the fact that it died and was buried before the outbreak of the World War, in which conflict, as we shall see, it was deeply involved. The depth of this involvement is as startling as it is appalling. The evidence, to be disclosed later, is as irrefutable as it is horrible; as incredible as irrefutable.

In propping up the ape-jaw and human-cranium of the "reconstructed" Piltdown man the opinions of various scientific authorities are set forth with such flourishes as to insinuate the impression that the scientists are singularly agreed among themselves in the

matter of Mr. Piltdown's affairs and their significance.

Neither in the public exhibition of this "missing link," nor in the public exhibition of any of the other "missing links," are the school children or their teachers informed that all along the line, leading to the ingeniously fabricated "finality" before them, are sharp and emphatic contradictions sponsored by distinguished scientists. They are kept in ignorance of the fact that these scientists have not only exposed the distortions, the mutilations and the gross inventions with which some of their colleagues have sought to stretch vehement and hectic opinions from the nebula of unsupported theory to the crystals of established fact, but have also announced that there is no warrant at all for the weird interpretations so painfully elaborated on the Piltdown remains.

The simple facts of the "discovery" of the Piltdown man are these: Walking along a farm road close to Piltdown Common, Fletching (Sussex), Mr. Charles Dawson "noticed that the road had been mended with some peculiar brown flints not usual in the district."

On inquiry he was "astonished" to learn that they had been dug from a gravel bed on the farm. Dawson vaguely fixes the time of his Sherlock Holmes-like observation and the "astonishment" that followed as "several years ago." Considering the date of his revelation (December 18, 1912), it would appear that the "discovery" was made some time in 1909 or 1910, when the faculties of observation, attributed by Sir A. Conan Doyle to the extraordinary detective whose powers of deduction have solved so many baffling mysteries, were still stirring the imagination of romancers the world over.

At any rate, "shortly afterwards" Mr. Charles Dawson visited the place and found two laborers digging gravel. He asked them if they had found any

bones or other fossils. They had not done so. He urged them to preserve anything they might find in the future.

Upon one of his "subsequent" visits a laborer handed him a small portion of unusually thick human parietal bone that looked as if it might be 300,000 years old. Note the use of the word "human." Never mind the age. Mr. Dawson immediately made a search but could find nothing more.

It was not until "some years later," in the autumn of 1911, on another visit to the spot, that he picked up another and larger piece of bone belonging to the frontal region of a skull, including a portion of the ridge extending over the left eyebrow.

Mr. Dawson took the bones to Dr. A. Smith Woodward of the British Museum. There was much talk. Then several laborers were employed to make a systematic search among the spoil heaps and gravel. Every particle of the gravel in the pit was sifted. The total results consisted of a piece of a jaw bone, another small piece of occipital bone from the skull, and a canine tooth. With these fragments, which a juggler could conceal in the palm of one hand, the scientists "reconstructed" the Piltdown man, and at once proclaimed it to be a new genus which they proceeded to call Eoanthropus or "Dawn Man," naming the species "Dawsoni" in honor of the discoverer.

To make the thing as sensational as possible it was necessary to reconstruct very closely along ape lines, for the nearer the "reconstruction could be pushed toward the brute, the more convincing would it be as "scientific evidence" in support of the "missing link" theory.

It wouldn't do to let the brain-pan of the Piltdown man hold too much brain matter. An ape skull on the one hand with a c.c. capacity of 600 and a modern

human skull on the other hand with a c.c. capacity of 1500 would suggest that *a half-ape and a half-man should have a c.c. capacity of about 1050,* "which figure would show a tremendous advance along evolutionary lines from the ape and a certain half-way approach toward modern man."

What could be more eloquent as a link—a "missing link"?

Dr. A. Smith Woodward and Mr. Charles Dawson made their calculations and gave to their Piltdown man a brain capacity *very accurately and very precisely fixed at 1070 c.c.* It suited all the requirements exactly.

Unmaking the Piltdown Man

In August, 1913, the British Association for the Advancement of Science discussed the Piltdown fragments which by this time included two molar teeth and two nasal bones. Then came the exposure of Professor Arthur Keith, curator of the Museum of the Royal College of Surgeons, London. Professor Keith demonstrated that the brain capacity of the Piltdown skull was nearer 1500 c.c. than 1070 c.c.

New "reconstructions," based on this exposure, by Professor McGregor and Professor Woodward have resulted in the admission, as reported by Dr. Ales Hrdlicka, curator of the Division of Physical Anthropology, United States National Museum, Washington, D. C., that the capacity of Mr. Piltdown's cranium is now estimated at approximately 1300 c.c. It began to appear that the "human" touch, so deftly applied when the thing was first described, was going to react with unexpected embarrassment. The figures 1300 were not as close to 600 as might be desired. They

were entirely too far apart for the comfort of a "half-man, half-ape."

The original reconstructors not only wanted a near-ape skull which has now, alas, vanished in their hands, but they also wanted an ape-like face and jaw. So they put their solitary canine tooth on the right side of the lower jaw at an angle suggestive of the ape. This also suited the requirements exactly.

But along came Professor W. K. Gregory and Professor G. S. Miller, writing respectively in the *Am. Mus. Journ.*, vol. 14, 1914, pp. 189-200, and *Smithsonian Misc. Coll.*, vol. 65, No. 12, Nov. 1915, in which they pointed out the necessity of further important modifications of the "reconstruction" based on the fact that the tooth described and used as the right lower canine was no lower tooth of any kind at all, and no right tooth either, but a left tooth and an upper tooth at that!

The scientists who couldn't properly fix the position of the only canine tooth in their possession were nevertheless very definite in fixing the stratified gravel of the Piltdown fragments as "in the main composed of Pliocene drift, probably reconstructed in the Pleistocene epoch." They wanted the Pliocene for purposes of greater antiquity. But, along came Professor W. Boyd Dawkins showing that the time could not be earlier than Pleistocene, because of the presence in the Piltdown deposits of an antler of red deer absolutely unknown in the Pliocene of Europe but abundant in the Pleistocene and later periods. This was too bad entirely, for it necessitated another reconstruction in which several hundred thousand years had to be knocked off the alleged age of Mr. Piltdown.

Not only have the scientists themselves objected to the arbitrary, dogmatic and wholly unwarranted reconstruction of the Piltdown man on the ground that

the teeth do not belong at all to the same skull, but that the jaw itself could not in any way be associated with the skull.

Using the words of Professor Ales Hrdlicka from the Smithsonian report for 1913, pp. 491-552, republished by the Government Printing Office, Washington, D. C., 1916, we hobble into a new pit of confusion and chaos. He says: "The most important development in the study of the Piltdown remains is the recent well documented objection by Professor Gerrit S. Miller of the United States National Museum to the classing together of the lower jaw and the canine with the cranium. According to Miller, who had ample anthropoid as well as human material for comparison, *the jaw and tooth belong to a fossil chimpanzee.*"

This is a heart-breaking admission coming, as it does, from a scientist as eminent as Miller, and even more heart-breaking is the admission made by Hrdlicka himself, when he urges that none of the conclusions regarding the Piltdown man should be accepted, and that all hypotheses relating to it must be regarded as more or less premature.

Here we have a skull with a capacity, now admitted by Professor Henry Fairfield Osborn himself, of 1300 c.c. well above the capacity of many white normal human skulls of today, and far above that of the average Australian. The missing-link was skidding clumsily.

No wonder the great German anatomist, G. Schwalbe, so frequently quoted by Professor Osborn, had to abandon the "missing link" opinion so picturesquely and noisily voiced as a scientific fact when he declared that "the proper restoration of the Piltdown fragments would make them belong not to any preceding stage of man, but to a well developed, good sized Homo sapiens, the true man of today." Why are such facts

as these withheld from the young student and from his teacher if truth is really an objective?

Before the transfer of the misused canine from the lower jaw, where it had no business, to the upper jaw, where it belonged, the scientists laid special emphasis on that all-important canine tooth. It justified them in asserting that "the skull represented an entirely new type of man in the making" and upon this plan of wholly gratuitous invention they established their ape-like jaw and ape-like face crowned with a human skull. Moreover, they were dealing with the mandible of a chimpanzee which, according to the evidence, never lived in the British Isles in any age, although when one was wanted, to fit a human skull, it was not difficult to find it in an English gravel bed!

"Convincing and Irrefutable"

The Piltdown remains disclose the ease with which "missing links" between apes and men can be fabricated by resort to wide stretches of imagination in support of pre-conceived opinions. The materialistic evolutionists, who have misrepresented the Piltdown man and all that they have sought to make it signify, are careful not to refer to the English authorities in the biological sciences who discussed all the Piltdown remains upon the first report of their discovery to the Geological Society of London, December, 1912. They avoid all mention of the fact that even at that early date the English authorities refused to accept the cranium and jaw as belonging to the same individual.

Sir Ray Lankester, not mentioned at all in the bibliography of the 1921, third edition, of Professor Osborn's "Men of the Old Stone Age," although one of the most distinguished of English scientists, emphatically denied the claim of Mr. Dawson and Dr. A. Smith

Woodward on the ground that the jaw and the skull had never belonged to the same creature.

Professor David Waterston of the University of London, Kings College, assisted in the exposure of the extraordinary claims made for the Dawn Man by confirming the analysis of Sir Ray Lankester on the ground that "the mandible was obviously that of a chimpanzee, while the fragments of the skull were human in all their characters."

Eleven months later Professor Waterston published a scientific paper (*Nature,* November 13, 1913, p. 319), in which he observed that "to refer the jaw bone and the cranium of the Piltdown remains to the same individual would be exactly equivalent to articulating a chimpanzee foot with the bones of a human thigh and leg.

"The outlines of the Piltdown jaw are identical with those of a chimpanzee jaw. The molar teeth (of the jaw) are identical with the ape form. The cranial fragments on the other hand are in practically all their details essentially human."

Since June 16, 1921, Professor W. D. Matthew of the American Museum of Natural History has been desirous of "heading off any bad influence that the writer's articles (calling attention to these exposures) may have." January 21, 1916, Professor Matthew declared in a scientific paper published in *Science,* that Professor Gerrit S. Miller's report as to the absolute identity of the Piltdown jaw as the jaw of a chimpanzee was "convincing and irrefutable," while Professor George Grant MacCurdy of Yale University, writing in *Science,* February 18, 1916, p. 228-231, spoke of the humiliating Piltdown exposure in broad terms, referring to the thing as a creature "robbed of a muzzle that ill became him."

Why was not one of the 937,000 persons who, ac-

cording to its own report visited the American Museum of Natural History in 1920, given any hint of the information thus revealed? If truth, the whole truth, and nothing but the truth is the chaste objective of science, how are the professors of the American Museum to explain the wholly misleading compound of indirection, innuendo and suppression now posing in the Hall of the Age of Man as a "scientific fact"?

Why do the Piltdown disciples ignore Professor George Grant MacCurdy of the Archæological Department of Yale University? Writing in *Science,* February 18, 1916, Professor MacCurdy completely demolished the Piltdown hoax in a few well-chosen phrases.

He said: "Regarding the Piltdown specimens we have at last reached a position that is tenable. The cranium is human, as was recognized by all in the beginning. On the other hand, the mandible and the canine tooth are those of a fossil chimpanzee. This means that in place of Eoanthropus Dawsoni (the Piltdown missing link) we have two individuals belonging to different genera." Instead of an incipient *Dawn Man* we have a comic cartoon under the caption, "Good night, Mr. Dawson."

Starting All Over

The writer suffers quite as much amazement as that reported by Mr. Dawson, to discover the 1921 illustrations of the Piltdown man as they continue, unashamed, to adorn pages 142, 143 and 145 of Professor Henry Fairfield Osborn's latest contribution to science.

Says Osborn, ("Men of the Old Stone Age"): "Elliott Smith concluded that members of the Piltdown race might well have been the direct ancestors of the existing species of man, thus affording a direct

link with undiscovered Tertiary apes; whereas the more recent fossil men of the Neanderthal type, with prominent brow ridges resembling those of the existing apes, may have belonged to a degenerate race which later became extinct.

"According to this view Eoanthropus (the Piltdown man) represents a persistent and very slightly modified descendant of the type of Tertiary man which was the common ancestor of a branch giving rise to Homo sapiens (existing species of men), on the one hand and of another branch giving rise to Homo neanderthalensis (half-ape, half-man) on the other.

"Another theory," continues Osborn, "as to the relationships of Eoanthropus is that of Marcelin Boule, who is inclined to regard the jaws of the Piltdown and Heidelberg races as of similar geologic age but of dissimilar racial type. If the skull and jaw of Piltdown belong to the same individual" (note the persistence of that if, if, if, even though no sense of shame accompanies it) "and if the mandibles of the Heidelberg and Piltdown men are of the same type, this discovery is most valuable in establishing the cranial structure of the Heidelberg race."

In spite of all the evidence to the contrary, they start all over again, fresh and undismayed, with a new premise of if, if, if, and immediately in the same sentence the conclusion drawn from the "if" shoots itself like a projectile from a gun, "This discovery is most valuable!!!" Read the preceding paragraph again if you would appreciate the grim humor of this "scientific" reference to "this discovery."

Again quoting Boule, Osborn says: "But it appears rather that we have here two types of man which lived in Chellean times, both distinguished by very low cranial characters. Of these the Piltdown race seems to us the probable ancestor in the direct line of the

recent species of man, Homo sapiens; while the Heidelberg race may be considered, until we have further knowledge, as a possible precursor of Homo neanderthalensis." Astonishing, indeed, as we shall see.

First they construct a half-ape and a half-man, drawing conclusions from their own fancies which are arrogantly described as "established fact." Then along come scientists from all parts of Europe and America, distinguished, honest, truth-loving explorers of man's history, and knock the ape out of the reconstruction.

The Ape in the Picture

However, the ape was once in the formula and thus served a purpose, for though now kicked out, the restorations go right on in all their apishness, as if nothing had happened, and the world is informed that the Piltdown race (half-ape, half man) is the probable ancestor in the direct line of the recent species of man, while the Heidelberg race, to which we shall shortly give attention, is the possible ancestor of the degenerate and now extinct Neanderthal (half-ape, half-man) creature.

That Professor Osborn should pass along as "scientific" such meaningless catchwords of Boule is no longer surprising for the reason that the same Boule provides the data upon which Professor Charles Knight, associated with Professor Osborn, wrote his amazing article on the Neanderthal half-ape, half-human creature who was the immediate predecessor of modern man, published in the June, 1921, number of *Popular Science Monthly.*

It was in this article on "experiments in man-making," not fantastic but "actually scientific"—in fact "the very last word in pure science"—that Professor

Knight of the American Museum of Natural History, author of the tremendous illustrations served up to hundreds of thousands of children annually, declared: "As he stands before us in all his primeval shagginess, grasping his heavy wooden spear in the moonlight—and so I have shown him in my drawing on the opposite page—he thrills us. This is our ancestor; this is the creature from which we evolved; this thing is bone of our bone, flesh of our flesh. We are stirred by *his* passions (*his* in italics), urged on by *his* nameless instincts (*his* in italics). Forty thousand years separate us from him. But millions of years separate him from still lower animals. He stands close to us—this cunning, fighting, hunting, ferocious Neanderthal man."

Professor Knight, describing his gorilla-like creature, (he uses the phrase "gorilla-like"), as a thing by actual measurement standing five feet, two inches in height, relies for his data upon this same Marcelin Boule, who in his "Annales de Palæontologie," vol. 7, 1912, p. 117, estimates the stature of the Neanderthal man as identical with that of the Spy man, whom we shall also come to later. But Professor Ales Hrdlicka in his "The Most Ancient Skeletal Remains of Man," says, p. 38: "This (measurement of Boule) is evidently based on erroneous data concerning the length of the bones. However, even the most precise estimate in this line can only be gross, though useful, approximations, for we know but little of the length of the trunk of these skeletons."

At this point one would think the materialistic evolutionists would pause in their persistent efforts to bolster their pet theory enough to make it comfortable. Even though complete skeletons, instead of fragments fancifully reconstructed, could be found, they would mean absolutely nothing unless the absurd conclusions

Courtesy Zoological Society.
Photograph by Edwin R. Sanborn.

Red Howler Monkey with prehensile tail. It was one of these tails that Haeckel cut off in fabricating his embryo illustrations.

that all men are cast in the same uniform mould, and that, therefore, the measurements of any one of them apply with equal accuracy to all the others, are to be gratuitously accepted.

At this writing (July, 1921) Mr. Jimmy Wilde is the world's champion fly-weight pugilist. He weighs 108 pounds and is five feet, two and one-half inches high. Mr. Jess Willard, ex-heavy-weight champion pugilist weighed in the ring 250 pounds and is six feet, six inches high.

Between these two extremes are to be found Mr. Johnny Kilbane, world champion feather-weight pugilist, 122 pounds, five feet, five inches; Mr. Benny Leonard, world champion light-weight pugilist, 135 pounds, five feet, five inches; Mr. Jack Britton, world champion welter-weight pugilist, 145 pounds, five feet, eight inches; Mr. Johnny Wilson, world champion middle-weight pugilist, 158 pounds, five feet, ten inches; Monsieur Georges Carpentier, French heavy-weight pugilist, 170 pounds, five feet, eleven and one-half inches; Mr. Jack Dempsey, conqueror of Mr. Jess Willard and the Frenchman, 190 pounds, six feet, one and one-half inches.

Suppose, some thousands of years hence, the skeleton of Mr. Jess Willard should be unearthed at a spot where it had lodged after a seismic disturbance, a drift, or some other experience, separating it from all other skeletons except those of animals. Would the discoverers say: "Aha! This spot used to be occupied by a race of giants who weighed 250 pounds and were six feet, six inches tall." Or should the skeleton discovered be that of Mr. Jimmy Wilde, would they say: "Aha! There used to live here a race about as tall as the Neanderthal half-ape, half-man race, five feet, two and one-half inches in height."

If the very long Willard leg bones alone were found,

measurements "strictly scientific" could be interpreted to mean that the "restored" trunk and head represented a creature nearly eight feet in height, and the protecting phrase "in all probability" would serve all the purposes of "approximate accuracy." Mr. Jess Willard would still remain an exceptional man, not "an average specimen," six feet, six inches in height and not eight feet tall.

Materializing a Phantom

The measurements upon which Professor Knight relies for his illustrations are doubtless those of the La Chapelle-aux-Saints bones, but as far as a generalization concerning height is concerned neither these nor any other isolated bones or bone fragments have any more significance than the extremes represented by the bones of Mr. Jimmy Wilde or the bones of Mr. Jess Willard. It would be quite impossible to determine whether any set of bones had belonged to pugilist or philosopher—a true Huxleyan dictum. Haeckel describes numerous human races now living as having a height of four feet, six inches for males and as low as three feet, six inches for females. The significance is degeneration, not evolution. See "Wonders of Life," 1904.

As for the Piltdown skull, it is clearly a human skull beneath which the evolutionists have modelled the face of a chimpanzee and so, according to Professor Keith, produced "an impossible animal that could neither breathe nor eat."

Among the scientists who have laughed at this ex parte fabrication, this new enormity, must be included Professor H. Klaatsch, recognized and quoted in other matters as an authority by Professor Osborn; Professor Hertwig, Professor Macnamara, quoted by Sir

Bertram Windle; the great palæontologist Branco, director of the Geological and Palæontological Institute of Berlin University, etc.

Always this Piltdown skull, with its Piltdown jaw, is associated with the so-called "Heidelberg" jaw, the "massive" development of which was parallelled by Professor Erich Wasmann in a modern Eskimo skull, which shall have further notice later. This similarity was noticed also by Kramberger, not so much as mentioned by Professor Osborn, whose writings are advertised as "the last word" and accepted as such by unthinking thousands.

So, too, as pointed out by Joseph Husslein, the Piltdown skull is not inferior to the skulls of men living now. Consequently, it is not surprising that Professor Osborn does not include in his bibliography the name of one of Europe's most distinguished pathologists and anthropologists, Professor Rudolf Virchow, who at the Twentieth Congress of the German Anthropological Association declared: "No one doubted at the first general meeting of the German Anthropological Association that the truth would be forthcoming demonstrating that man was descended from a monkey, and that his descent from a monkey, or at least from some kind of animal, would soon be established.

"This was a challenge which was made and successfully defended in the first battle. Everybody knew all about it and was interested in it. Some spoke for it; some against it. It was considered the great question of anthropology.

"Let me remind you, however, at this point, that natural science, so long as it remains science, works only with really existing objects.

"A hypothesis may be discussed, but its significance can be established only by producing actual proofs in its favor, either by experiments or direct observation.

"This," cautioned Virchow, "Darwinism has not succeeded in doing. In vain have its adherents sought for connecting links which should connect man with the monkey. Not a single one has been found. This so-called proanthropus which is supposed to represent this connecting link has not appeared. No true scientist claims to have seen him."

Virchow never changed and, with the equally famous palæontologist Branco, never quoted by the untiring followers of subterfuge and invention posing as scientific data, they continue to declare "the man-ape has no existence and the missing link remains a phantom."

CHAPTER II

The Trinil Ape-Man

The Trinil ape-man—Compounding two in one—Hiding the missing links —Floods and sand-storms.

The Trinil ape-man of Java has been reconstructed by the Belgian artist Mascre, under the direction of Professor A. Rutot of Brussels, and independently by Professor J. H. McGregor for the Hall of the Age of Man, American Museum of Natural History.

The two reconstructions differ so from each other as to look less alike than Fatty Arbuckle and Charlie Chaplin.

Had Professor Osborn used the Rutot reconstruction as a substitute for the McGregor reconstruction in his progressive series of three busts pictured on the front cover and again on page 3 of the American Museum of Natural History's guide leaflet, series No. 52, the whole effect of progression would have been spoiled. Moreover Professor Osborn would have had a less dramatic subject to deal with.

The McGregor bust represents a short-haired, hideous creature suggesting a slightly improved gorilla, whereas the Rutot bust is that of a long-haired, heavily-bearded, somewhat pious creature, looking heavenward with no expression of squat ferocity but rather with a soft sweetness, emphasized by two armsful of gorgeous vegetation, palm leaves, fern and other symbols of docility and peace. You will find him, page 73,

Professor Osborn's "Men of the Old Stone Age," 1921.

He would make a poor beginning for the Osborn drama in which he would appear like Topsy of Uncle Tom's Cabin trying to play the part of Othello in Shakespeare's tragedy of that name.

It so happens that the McGregor reconstruction, being pure fancy with no science in it, serves the Osborn purpose as stepping-stone No. 1. Thus we have the Trinil Ape-Man, an improvement on a gorilla, leading to stepping-stone No. 2, which, in the person of the Neanderthal man, is an improvement on the improvement of the improved gorilla.

Hence we get a sort of evil genius similar to the fellow who dominated Robert Louis Stevenson's dual character of Doctor Jekyl and Mr. Hyde, so that stepping-stone No. 3, being a progressive evolutionary improvement on all the other improvements might be labelled "Cro-Magnon Man."

In this fashion we come to the hokus-pokus, without foundation in fact or justification in fancy, upon which Professor Osborn creates thousands of pre-human men who, he says, lived 500,000 years ago. Osborn speaks of the discovery of the Trinil "Race" in Central Java—not an ape-man, but a "race" of ape-men. With a triumphant flourish and a gesture of finality in the best grand style, the Osborn guide leaflet demonstrates "the progressive increase of relative intelligence appreciated by the most casual observer."

It also demonstrates "especially by definite anatomical characters the increased prominence of the chin, the reduction of the eyebrow ridges, the reduction of the prominence of the lower face as a whole, the increased size of skull and of brain capacity." Osborn does not know that the supra-orbital (eyebrow) ridges are less prominent now, in 1921, among the negroes of

Courtesy Zoological Society.
Photograph by Edwin R. Sanborn.

Profile view of chimpanzee showing supra-orbital arches, ear, upper lip, mouth, absence of nose and chin. Compare ear and brow with ear and brow of orang. Also compare with "restored" head of Trinil Ape-Man in group of three busts opposite page 39.

Africa and the Chinamen of Asia than among the modern European whites. Professor Arthur Keith ("The Human Body," 1910, pp. 177) says, "In the typical African negro the forehead as a rule is high and the supra-orbital ridges are distinctly less prominent than in the European. The supra-orbital ridges of the Chinaman are less developed than in the European."

If Osborn failed to suggest the very reverse of these facts he would be unable to make his theory of evolution sufficiently plausible for the child for whom it is intended, hence he describes as "science" the arbitrary and picturesque creations of clay modelers who have had less to work with than the manufacturers of ouija boards.

On one point in connection with the Trinil Ape-Man and the stage-setting in which he appears, Professor Osborn, with astonishing frankness, says "Five cases in the center of the Hall are devoted to the story of man (sic) and that it can be compressed into so small a space is an indication of the scarcity of his remains, for here are displayed reproductions of all of the notable specimens that have been discovered." All these notable specimens, upon which volumes have been written, can be housed in a peach-basket. Most of the broken bone fragments are admittedly the bones of apes. Some of them, upon which great hopes were raised and which have been described as the long sought missing links between ape and man, are now classified as the bones of a chimpanzee.

The "restored head" of the Trinil Ape-Man, designed to show a half-human, half-ape "resemblance," rests solely upon a piece of bone weighing a few ounces. That Professor Osborn should attempt to use this piece of bone as he has used it is inexplicable, for he says of it himself: "The Trinil Ape-Man is the first of the

conundrums in human history." Then he immediately asks this question: "Is the Trinil race (sic) pre-human or not?" He does not answer, but the whole substance of his leaflet, the whole substance of his book and the whole substance of the Hall of the Age of Man is: Man has indeed descended from the ape and these reconstructions constitute conclusive and incontrovertible proof of the fact.

Out of all this "proof," dignified as the palæontological evidence of a man's descent, Professor Osborn draws so many shreds of secret doubt that he must protect himself against the difficulties in his path by admitting ("Guide Leaflet," series No. 52, p. 4) "Man is not descended from any known form of ape, either living or fossil." This confession is not original with Osborn nor is it new with any of the monkey evolutionists. You will find it back in 1871 on Darwin's lips: *"But we must not fall into the error of supposing that the early progenitors of man were identical with or even closely resembled any existing ape or monkey."* (See "Descent of Man," 1871, vol. I, p. 158.)

Notwithstanding the elaborate spreading out of his weird repository of bone fragments, he is so stumped by the poverty of his "scientific evidence" as to be provoked to an admission wholly out of harmony with the positiveness and the finality of the conclusions characteristic of the ape-manologists of his day.

He says, speaking of the Trinil Ape-man: "It is not impossible that this ape-man is related to the Neanderthal man."

Again he says, page 77, "Men of the Old Stone Age"—and you are asked to carefully note for comparison later the excerpt—"We may form our own opinion, however, from a fuller understanding of the specimens themselves, always keeping in mind that it is a

question whether the femur and the skull belong to the same individual or even to the same race."

Compounding Two in One

Remembering this, let us have the facts. The only remains of the now famous Trinil Ape-Man consist of a small section of a brain pan, two molar teeth and a piece of thigh bone unearthed 1891 near Trinil, Java, by the intimate friend of Ernst Haeckel, Eugene Dubois, a Dutch military surgeon, who described his discoveries four years later, September, 1895, at the Third International Congress of Zoologists at Leyden. The two shattered bones were found sixteen yards apart but within the same year. One of the teeth was found near the fragment of skull bone and the other near the thigh bone.

Dubois reconstructed these scanty remains, called them Pithecanthropus erectus (meaning ape-man standing upright), and declared they were neither ape nor man and therefore could only be a connecting link between ape and man.

The famous Rudolf Virchow, president of the Congress, prudently observed that inasmuch as the fragments of bone picked up during the course of a year had been discovered far apart there was no evidence at all that they had ever formed part of the same creature, and it was still less possible to characterize such a compound of two creatures either as man or as ape, since the thigh bone was a man's thigh bone, whereas the fragment of brain-pan belonged to a chimpanzee or a gibbon.

John Lubbock (Lord Avebury) who had the good fortune to see the remains before they were hidden from scientists, says of them ("Prehistoric Times," p. 401): "It is greatly to be regretted that they are not

more complete, but they certainly belonged either to a very large gibbon or a very small man." The gibbon is the smallest of the so-called great apes. It is no longer included in the same family (Simiidae) with the chimpanzee, gorilla and orang. All the gibbons are now confined to the single genus Hylobates. They rarely exceed three feet in height. A larger gibbon would be classified as a "giant." It is for this reason that Lubbock speaks of the Trinil skull-cap as belonging to "a very large gibbon" or "a very small man" —a dwarf.

No hint of the truth is disclosed when the Trinil Ape-Man is popularly described. As if to emphasize its lack of significance Richard Lydekker, writing for the Encyclopedia Britannica, eleventh edition, disposes of the Trinil Ape-Man in uncolored terms. He says, (vol. xxii., p. 336): "The forehead is extremely low, with beetling brow-ridges and the whole calvarium presents a curiously gibbon-like aspect."

As so many points of superficial resemblance between man and the primates are emphasized by the evolutionist he might have added the fact, suppressed in all the text books, that man has twelve pairs of ribs, whereas the gibbon and the chimpanzee have thirteen pairs; that man has twelve dorsal vertebrae whereas the chimpanzee and gorilla have thirteen and the gibbon fourteen; that the liver of the gorilla, which creature is supposed to be most man-like of the primates, is not like man's liver at all, but like the liver of the baboon, which is a dog-like ape with a tail. In the gorilla's liver both the right and left lobes are cleft by a fissure. In the langur group the liver is much divided and placed obliquely to accommodate the sacculated stomach.

The Piltdown exposure should have prevented the Trinil resurrection for the reason that the original

Trinil exhibit was discredited many years before the Piltdown "discovery." But the missing link chasers are stubbornly persistent. What they can't catch ready-made they can create on the spot. Hence Virchow's word of caution to the all-too-eager ape-manologists, urging them in their elaboration of missing links to wait until they can get hold of a real skeleton, a complete skeleton, to take the place of their few fragments of broken bones. Even Osborn himself admits that the Trinil thigh bone is human and that the Trinil skull-cap is simian. Of the two teeth he says ("Men of the Old Stone Age," p. 81): "They do not resemble those of man closely enough to positively confirm the pre-human theory." He might have said, speaking of resemblances, "In the hand of man the same bones are to be seen as in the tortoise. The elements in the foot of a lizard are the same even in the highly modified human foot." He would have found the words quoted on page 371, "Human Embryology and Morphology" by Arthur Keith, M.D., F.R.C.S., 1910, Royal College of Surgeons, University of Aberdeen, University of Cambridge, London Hospital Medical College, etc., etc.

From all this are we to have a "Tortoise Theory" or a "Lizard Theory" or are we to go right on, shattering "resemblances" only when they fail to come to our aid in support of something "pre-human"?

Of course there isn't the slightest evidence of any kind to indicate that the two Trinil teeth were ever associated in life with the Trinil skull-cap or the Trinil thigh bone. On the contrary, the evidence simply proves that a human thigh bone could have belonged to no creature with a simian skull-cap. Why, then, does Professor Osborn insist in assembling them as a missing link; as a stepping-stone in a progressive series;

as scientific palæontological proof of man's ape-origin?

Osborn says ("Men of the Old Stone Age," p. 77): "This fully justifies the opinion of the anatomist Schwalbe that the skull of Pithecanthropus (Trinil Ape-Man) is nearer to that of Neanderthal man than to that of even the highest of the anthropoid apes." In this manner, difficult to follow when a scientist is speaking, he re-emphasizes the alleged connection between the Trinil Ape-Man and the modern man, using the Neanderthal man as the link.

Speculations of this kind appear with surprising frequency. In the New York Sunday *American* of August 7, 1921, with a syndicated circulation of perhaps 3,000,000 copies, reaching perhaps 15,000,000 individuals, an entire page with faked illustrations was devoted to an article by Dr. W. H. Ballou, dealing with men possessing tails, covered with monkey-like hair and equipped with ape-legs, arms, hands and feet. Dr. Ballou reverts to the Trinil Ape-Man. Not only does he assert that "this Trinil man is the earliest specimen of a man-like creature that has ever been found," but he also declares: "It stood erect, had a well-shaped human head and was tailed. Science deduced from the skeleton (sic) our evolution into the smooth-skinned, tailless creatures that we are today. . . . From the most ancient legends (sic) it would seem that the tailed people (sic) are true descendants of the Trinil Ape-Man who was not confined to Java, Borneo and New Guinea."

Now we see that the Trinil Ape-Man had a tail! Dr. Ballou speaks of his skeleton as a fact. The readers of the New York *American* can hardly be presumed to know that there never was any such tail or any such skeleton.

Courtesy Zoological Society.
Photograph by Edwin R. Sanborn.

Gibbon. One of the four anthropoid apes noted for absence of tail. Curious as it may seem, the ape-manologists are forced to admit that this creature is anatomically nearer to man than any of the other anthropoids. Study it.

Hiding the Missing Links

Dr. Ballou's appeal to the Trinil ape-tail as proof that modern man once had a similar tail is like the appeal of Professor Osborn to Professor Schwalbe. This very Schwalbe, pressed into service by Osborn, said ("Vorgeschichte des Menschen," 1904, p. 29): "The Pithecanthropus (Trinil Ape-Man) has no place in the genealogical line of man's direct ancestors." What, then, is Osborn's purpose, by inference and illustration, in keeping him in that direct line? Osborn himself admits ("Men of the Old Stone Age," p. 79): "There are, however, reasons for excluding Pithecanthropus (Trinil Ape-Man) from the direct ancestral line of the higher races of man." What higher races? What skeleton? What tail? What are they talking about? They might as well say, "There are, however, reasons for excluding the duck-bill, the salamander and the flying fish from the direct ancestral line of the higher races of man." Of course there are such reasons—for exclusion—many of them, but no reasons at all for ever including them in the first place.

What's all the shooting for? What have they been trying to do with all this noise when they themselves admit it has nothing to do with anything?

Professor Osborn's own witnesses, Klaatsch, Schwalbe, and Alsberg declare that the Trinil Ape-Man not only does not belong to the pedigree of man but that it does belong to the pedigree not of any extinct ape or fossil ape, but to the pedigree of the modern apes, wherefore "he ceases to be a witness in support of the theory of man's descent from beast."

Professor Osborn admits that no living ape belongs to the pedigree of man. He also admits that no fossil ape belongs to the pedigree of man. His witnesses Schwalbe and Klaatsch admit that the Trinil monster

does not belong to the pedigree of man. They do admit that the Trinil monster does belong to the pedigree of the modern apes, but as modern man and modern apes are admitted to have no relation to each other, Professor Osborn can't bring in the Trinil monster without bringing in the modern apes, and precisely that he confesses he cannot do.

With these facts known to him, what does Professor Osborn mean when he says, p. 5, guide leaflet series No. 52 (referring to the contents of case 1 in the Hall of the Age of Man, showing the Trinil race of Java and other primates, living or extinct, which aid in reconstructing the ancestral tree of the human race), "Between these two groups have been placed a restoration of the skull and of the head of the Trinil Ape-Man of Java (Pithecanthropus erectus) and a cast of the actually discovered brain case and two of the teeth?" Is this not speaking of something that is something, something that stands between two groups?

Again we are justified in asking, "What does Professor Osborn mean?"

In the group in the right half of the case he has arranged the skulls of certain anthropoid apes, gibbon, orang, chimpanzee, adult gorilla, young gorilla and the Trinil ape skull. On the left he has arranged reconstructed models of the exploded Piltdown, the mutilated Neanderthal, the shattered Talgai, the reconstructed Cro-Magnon, and a recent human skull. In a niche, specially constructed for the purpose, he mounts the bust of the Trinil Ape-Man, in the exact center of these two groups.

He will never explain this as science for the reason that there is no science in it.

He does not say he has ever seen the Trinil Ape-Man. He does not say he knows where the remains of the Trinil Ape-Man are to be found for inspection.

He does know they are not to be found for inspection at all and that, although they have been discovered for thirty years, scientists themselves are not permitted to examine them or even to see them. Why all the secrecy? Professor Osborn knows all about this secrecy. Why does he not refer to it?

Professor Osborn knows that Dr. Ales Hrdlicka himself, whom he quotes in other matters, was not permitted, even as curator of the United States National Museum, to examine or even to see the Trinil ape remains.

Hrdlicka says, Smithsonian Publication 2300, p. 10: "It would surely seem proper and desirable that specimens of such value to science should be freely accessible to well qualified investigators and that accurate casts be made available to scientific institutions, particularly after twenty (now thirty) years have elapsed since the discovery of the original.

"Regrettably, however, all that has thus far been furnished to the scientific world is a cast of the skull-cap, the commercial replicas of which yield measurements different from those reported taken of the original, and several not thoroughly satisfactory illustrations; no reproductions can be had of the femur and the teeth" (about which Professor Osborn speaks in his book as if he had seen, examined and measured them), *"and not only the study but even a view of the originals are denied to scientific men."*

It is rather disturbing to learn that the study of Schwalbe, upon whom Osborn relies so heavily, was made on a cast, the measurements of which do not agree with those given out by Dubois on the original. Dr. Hrdlicka treats these facts with great delicacy, but one who has no fear of offending his scientific fellows can speak out in meeting and ask the questions: "What are they afraid of? What have they to con-

ceal? Have they been faking in a manner that would be automatically disclosed if scientific men were to be permitted to see for themselves that which, strange and inexplicable as it may seem, they are not permitted to see for themselves?

"Why the queer drawings instead of photographs? Why the significant silence of Osborn, who passes discreetly over these questions which surely must be of profound importance to him and the subject upon which he poses as an authority?"

Floods and Sand-Storms

Professor Osborn is not so silent about other things. He has no reluctance in venturing opinions that are important to nobody but himself. He has opinions in explanation of the failure of science to discover anything like a skeleton of the missing link. His explanation on that important point is that "although the ancestors of man lived partly among trees and forests, they lived chiefly on the ground, where they were entombed by floods and sand-storms."

This explanation of the inability of scientists to locate a single pre-human link connecting the ape with man is a singularly forced subterfuge. The same scientists have found no difficulty in discovering the fossil remains of hundreds of the ancestors of the horse and other animals, including monkeys and great apes of every description.

If the floods and sand-storms entombed all the fossil remains of ape-men and sub-men, why did the same floods and sand-storms spare the fossil remains of the countless scores of smaller animals now on exhibition in all the museums of the world?

Brain Pans

What about the school teachers who inspect the exhibits in the Hall of the Age of Man, and who are not informed that the Weddas, a race of dwarfs from Ceylon, have a skull capacity of 960 c.c., which is very much smaller but ought to be very much larger than the skull capacity of a creature described as "500,000 years old."

Very much is made of these brain-pan capacities as expressed in cubic centimeters. Professor Osborn himself employs them as eloquent proof of the evolutionary development of man. But in assigning to his Neanderthal craniums a brain capacity of 1408 c.c. he makes no mention of the fact that the average cranial capacity of the males of Central Europe today is but 1503 c.c., and that of females but 1300 c.c. This, of course, means that the human female of modern Central Europe is less intelligent than the American Museum of Natural History's restoration of the nearest thing to the half-human, half-ape creature which stands back there thousands and thousands of years ago along "man's magnificent ascent from the brute." Professor Osborn employs the c.c. figures because he accepts the doctrine of the materialistic school which declares that the capacity of the skull affords a direct indication of the mental capabilities of its owner.

It is very sad, indeed, for the purposes of the evolutionist, to have to realize that few human beings today have a cranial capacity greater than that of the subhuman creatures whose restorations inhabit the confusion now known as the Hall of the Age of Man.

The receptive school teachers who visit this famous Hall will not be flattered by the realization of the fact that their brain capacity corresponds almost exactly with the brain capacity of the Neanderthal restorations. Either Professor Osborn has all but made

monkeys of the school teachers, or as far as skulls are concerned the Neanderthals were just as human as any other human being is supposed to be or can be. That is precisely what they were!

It was once thought that Bismarck's skull, which was really enormous, having a brain capacity of 1965 c.c., was about the biggest thing of its kind in the world, but Professor Rudolf Virchow discovered a skull with a brain capacity of 2010 c.c. It belonged not to a poet or statesman of Great Britain, Germany or France; not to a creature of any civilized nation. *It belonged to a savage of New Britain!*

One of the stumbling blocks created by Professor Osborn himself, but nowhere referred to by himself, is found in the fact that these old palæolithic skulls, described as Neanderthal, although said to be 50,000 years old, had an average capacity of 1626-1635 c.c. Some of them measure up to 1700 c.c. These figures knock the bottom out of the evolutionary procession which, for the sake of plausibility, must ever move from a low figure to a higher figure, and certainly where brains are to be considered must never move backward like Hamlet's crab.

Leaving animal psychology and philosophy out of the question, it is certain that on the history of the human race science has absolutely nothing to reveal with regard to the alleged facts which Professor Osborn by his exhibitions and his written words would have the school children of New York and their teachers believe have been scientifically demonstrated.

CHAPTER III

The Neanderthal Man

The Neanderthal man—Blacks and whites—Another correction—Manufacturing "progressive" evidence—Not a solitary fossil—Suppressing contradictions—All true men—Fate of a scientific freak—"Historical facts" and falsehoods.

All this brings us to the Neanderthal man, who is Professor Henry Fairfield Osborn's master centerpiece in three "restorations" exhibited in the Hall of the Age of Man, American Museum of Natural History, and described, May, 1921, by Professor Osborn, in his guide leaflet series No. 52, "For the People, For Education, For Science," in a half-tone photographic reproduction designed to be overwhelming, not as a scientific fact, but as an innuendo so dramatically posed as to create the impression on the impressionable that here, indeed, are the last words of truth concerning the ape-origin of man.

The most famous of the skeletal remains described as "missing links" are the specimens which have all but resurrected a whole race of missing links known as the Neanderthals.

The piece of bone now known as the famous Neanderthal skull was found, August, 1856, by two laborers who were digging in a small cave at the entrance of the Neanderthal gorge, Westphalia, Germany. An Elberfeld physician, Dr. Fuhlrott, became interested in it and other fragments of bone found in the same cave. Thus he collected a human thigh bone well preserved,

several human arm bones not so well preserved, some fragments of human elbow bones (forearm), a piece of a right human radius (a forearm bone), a fragment of a human left pelvic bone, a fragment of a human right shoulder blade, a small piece of a human right collar bone, and five broken pieces of human rib.

The following year, February 4, 1857, Professor D. Schaaffhausen of Bonn made a preliminary report upon these bones at the meeting of the Lower Rhine Medical and Natural History Society of Bonn. June 2, 1857, Dr. Fuhlrott made another report covering the same bone fragments at the general meeting of the Natural History Society of Prussian Rhineland and Westphalia. Dr. Fuhlrott suggested that the Neanderthal bones might be regarded as "fossil." Dr. Ales Hrdlicka, referring to Dr. Fuhlrott's opinion, says: "By 'fossil' he possibly meant not merely mineralized but also belonging to a form of humanity no more existing."

At once all sorts of legends began to develop upon the Neanderthal bones. They were talked of as belonging to a period preceding the Celts and Germans. It was said they proceeded from one of the wild races of Northwestern Europe, spoken of by Latin writers. It was said there was no doubt that they were traceable to a period at which the latest animals of the Diluvian still existed.

But even Professor Schaaffhausen admitted sixty years ago, "No proof of this assumption, nor consequently of their so termed fossil condition, was afforded by the circumstances under which the bones were discovered."

For many years a tremendous controversy was carried on concerning the significance of the piece of Neanderthal skull prior to the finding of the Spy, Gibraltar and similar skeletal remains. Professor Rudolf

Trinil Ape Man | Neanderthal Man | Cro-Magnon Man

These three busts are from restorations by J. H. McGregor. They will be found in Guide Leaflet Series, No. 52, published by the American Museum of Natural History. The originals are on exhibition in the Hall of the Age of Man, in the Museum. Professor Osborn says of them: "That these three restorations of prehistoric man form a progressive series, from left to right, is evident not only by the general form and the appearance of relative intelligence appreciated by the most casual observer, but especially by definite anatomical characters such as increased prominence of the chin, reduction of the eyebrow ridges, reduction of the prominence of the lower face as a whole, increased size of skull and of brain capacity (brain capacities of the three races from left to right: 858-900cc.; 1408cc.; 1550-1880cc.)."

Virchow and many others looked upon the bone as a diseased specimen. Professor J. Barnard Davis declared its sutures indicated a premature synostosis. Dr. C. Carter Blake insisted, 1864, and again 1866, that such part of the skull as could be examined indicated that it had proceeded from an idiot.

From time to time other skulls of similar conformation were discovered in different parts of Europe. Comparisons soon led to the definite claim that the cranium and bones represented no pathological or accidental monstrosity but a peculiar and thereto unknown type of ancient humanity who was a very close relative to modern man, but "equally close to some pre-existing ape now extinct." In other words he was equally close to something of which nothing existed!

Thus came into existence a whole race of creatures now referred to as Homo neanderthalensis with an age of hundreds of thousands of years! or of but thirty thousand years! as you choose.

Blacks and Whites

Notwithstanding the finding of so-called other Neanderthal remains, Dr. Ales Hrdlicka, curator United States National Museum, who has examined the remains now preserved in the Provincial Museum at Bonn, says: "The supra-orbital fore-structure or arch formed through this protrusion is heavier than in any other known example of the Homo neanderthalensis. The vault shows very good dimensions in length and breadth but is strikingly low, and the bones are considerably thicker than in the white man of today."

Just why the thickness of the bones should be compared with the white man rather than with the African Negro or Australian Bushman is not clear, though the student is forced to admit that it is quite as clear

as a comparison with something of which nothing exists!

All lovers of the theatre who admired the intellectual achievements of Sir Henry Irving marvelled over his very low forehead which sloped markedly backward, though not so much so as the forehead of Marquis La Fayette of revolutionary fame. The writer possesses an autographed photograph given to him in 1900 by Sir Henry himself, and is not surprised that the materialistic evolutionists completely ignore its profile in their comparative studies. The Henry Irving skull in some respects would confound them. One could distort its description in support of any weird theory under discussion.

Describing the original Neanderthal skull-cap, Dr. Hrdlicka says, p. 30, "The Most Ancient Skeletal Remains of Man,"—"The forehead is very low and also slopes markedly backward, nevertheless it presents a moderately defined convexity. The sagittal region is oval from side to side, much like that in man of today." The description could be forced to fit Sir Henry's brain pan with respect to the outlines of the sagittal median curve. It would fit La Fayette's brain pan nicely. And Rudyard Kipling's!

The internal capacity of this skull was fixed very low, for obvious reasons, by Professor Schaaffhausen. He wanted to get it, like the Piltdown skull of a later date, as close to the brute as possible, so he declared that it had a c.c. capacity of 1033. The highest form of ape stops at 600 c.c.

Another Correction

Even Professor Huxley was forced to correct this estimate by giving it a c.c. capacity of 1230. Professor Schwalbe confirmed the Huxley measurements by

giving it a c.c. capacity of 1234, which is very close to the cranial capacity of the modern school teacher's skull.

Having made as much as they could of the "primitive," inferior, "sub-man" significance of the Neanderthal skull, they turned their attention to the remainder of the bones with the conclusion that the various parts represented human beings far advanced above any anthropoid, but still on a lower scale of evolution than the skull and bones of any white man of today.

That they could make the same statement concerning the bones of many living races as compared with the white man of today, but do not, must ever remain one of the unexplained complexities of the materialistic evolutionist's subjective state of mind.

Even Hrdlicka (Smithsonian Institute), who is most careful, most conservative and most sincere, and whose scholarship is recognized by all modern scientists (extolled by Professor Henry Fairfield Osborn himself), speaking of the Neanderthal bones, uses a single word—"already"—which discloses the unyielding and unassailable stability of the preconceptions and pre-opinions which dominate and bias what would otherwise be a detached and uncolored attitude toward the truth.

He says, Smithsonian Institution Publication 2300: "A careful examination and comparison of the Neanderthal skull and bones can leave only one impression on the anatomist or anthropologist of today, which is that while individually and jointly the various parts represent a human being ALREADY far advanced above any anthropoid, they are still in many respects decidedly more primitive in form than the skull and bones of any man of today."

That word "already" conclusively shows that Dr. Hrdlicka himself is working on the theory so unscrup-

ulously popularized by Ernst Haeckel, whose forgeries of plates and other deliberate mutilations of truth have exposed him in the act of formulating a theory which once formulated must insist that henceforth all opinions, all convictions, all facts must be made to conform with it or be rejected entirely.

It was Haeckel, as we shall see, who started the currents of falsehood flowing into the stream of scientific truth, and unhappily we find Hrdlicka subconsciously influenced by Haeckelian contamination.

When Hrdlicka employs the word "already" he means that man did begin in the brute and had "already" far advanced toward his present form, and yet his own words of caution on this very subject prove that he is conscious of the unscientific tendency which has thus crept into science.

He says: "The various failures and uncertainties connected with some of the finds in the past have impressed all investigators in the field with the necessity of the most careful and properly controlled procedure. There are many specimens for which greater or less antiquity has been at some time or is still being claimed. In many of these instances the student finds that the evidence adduced and the testimony of the skeletal parts themselves speak rather against any great age or leave the subject in serious doubt. It would seem best for the progress of science to eliminate all such specimens from consideration until ample evidence be found, etc."

Manufacturing "Progressive" Evidence

Professor Henry Fairfield Osborn, in his exhibit now presenting unsupported opinions as established fact in the Hall of the Age of Man, describes the Neanderthal race as "the missing link." He labels Case

III in the Hall of the Age of Man "the immediate predecessor of modern man, the Neanderthal race," notwithstanding the ever-growing body of evidence that the Neanderthals were a race of blacks.

In addition to a cast of the original Neanderthal skull-cap Professor Osborn includes in his Neanderthal circle the cast of a skull discovered at Spy, Belgium, casts of fragments of jaws from Malarnaud, France; fragments of jaw from Krapina, Croetia; cast of a skull found at Le Moustier, France; cast of a skull from La Chapelle-aux-Saints, France; reconstructions of a female skull found at Gibraltar, 1848, including half of the soft parts of the head and a lower jaw restored from studies of ten other Neanderthal jaws.

This Neanderthal collection surrounds a central bust modelled by Professor J. H. McGregor.

This bust has been so elaborated as to take its place as "Link No. 2" in the three links "forming a progressive series." The openly avowed intention, to use Professor Osborn's own words, "is evident not only by the general form and the appearance of relative intelligence appreciated by the most casual observer, but especially by definite anatomical characters such as increased prominence of the chin, reduction of the eyebrow ridges, reduction of the prominence of the lower face as a whole, increased size of skull and of brain capacity."

"Link No. 1" in this progressive series is labelled the Trinil Ape-Man, an imaginary creature to which the professor assigns a brain capacity of 858-900 c.c. He calls it an ape-man to distinguish it from pure ape with a brain capacity of 600 c.c. on the one hand and the Neanderthal man with a brain capacity of 1408 c.c. on the other.

"Link No. 3" in this extraordinary series is a restoration of the Cro-Magnon man with a brain capacity

of 1550-1880 c.c. How expressive these progressive groups (600 c.c.), (858-900 c.c.), (1408 c.c.), (1550-1880 c.c.).

Obviously the series is progressive. Obviously an increase in relative intelligence is part of the progress. But not so obvious to the uncritical is the fact that the whole show has the same scientific standing as that possessed by poor Mr. Piltdown whose wreckage has been flung about the scientific world, despite the labored effort of Professor Arthur Keith to offset the damage occasioned to that creature's reputation when he, Keith, exposed the first reconstruction. Keith is quite as ardent as Osborn in his devotion to the ape-man theory, and though he offers apology for the tediousness of his attempt he nevertheless makes a heroic endeavor to furnish a new face for the Piltdown outcast by giving to it many pages in his "The Antiquity of Man," 1915. For the student interested in strained effects the book is worth reading. One would not think it could have been written by the author of "Human Embryology and Morphology."

Not a Solitary Fossil

One of the strong pillars supporting Professor Osborn's opinions is found in the person of Professor H. Klaatsch, who, like the discredited Ernst Haeckel, *assumes* the existence of a hypothetical common ancestor of men and apes.

As late as 1899, at the Anthropological Congress at Lindau, in speaking of Klaatsch's opinion, Professor Johannes Ranke, who for obvious reasons is not quoted by Professor Osborn, said (p. 463, "Modern Biology and the Theory of Evolution," by Erich Wasmann): "Whilst a charming picture of the past and possibly of the future is being shown us, and whilst a fanciful

design is being carried out in all directions, we are as a rule in quest of facts, not of theories. The facts, however, upon which Herr Klaatsch claims to base his ingenious theory, do not at present exist, and I must protest against his assuming that they have been really furnished by zoology and palæontology any more than by anatomy. All else is still a matter of hypothesis and if anyone attempts to use it in order to produce a finished picture the result is a work merely of the imagination."

To this Erich Wasmann himself adds: "We have the pedigree of the present apes, a pedigree very rich in species and coming down from the hypothetical ancestral form of the oldest Tertiary period to the present day. Zittel's *Grundzüge der Paläontologie* gives a list of no fewer than thirty genera of fossil Pro-Simiae and eighteen genera of fossil apes, the remains of which are buried in the various strata from the Lower Eocene to the close of the Alluvial epoch, but not one connecting link has been found between their hypothetical ancestral forms and man at the present time. The whole hypothetical pedigree of man is not supported by a single fossil genus or a single fossil species."

How extraordinary! If man were really descended from a pre-historic ancestor common to him and to the apes of the present day, there must surely be some fossil trace left of his existence and not merely traces of apes. Why does palæontology furnish so many and such wonderful specimens of fossil apes and not a single specimen of a hypothetical ancestor of man if they really lived side by side, as is the claim?

In 1899 these stumbling blocks were making more difficult the progress of the theory of man's ape-origin. Hence the Herculean effort inspired some twelve years later by the perfectly gorgeous discovery of poor Mr.

Piltdown. It was hoped that Mr. Piltdown would bridge the abysmal gap in the sadly ruptured hypothetical pedigree.

We have seen how they attached the jaw of a chimpanzee to a human skull; how they compressed their measurements of that skull to make its c.c. capacity conform with the figure they thought they ought to have to bring it into the sub-man or part-brute domain; how they misplaced an upper canine tooth by putting it into the lower jaw where it didn't belong, in order the more to justify their reconstruction of an apish face.

We can now understand all the fuss inspired by Mr. Piltdown, but we cannot understand why the report of Mr. Piltdown's ignominious demise has not been presented with becoming scientific candor to the thousands of school children who, accompanied by their teachers, make daily visits to the American Museum of Natural History, where they fail to find any fragment of Sir Ray Lankester's discouraging communication to the all too eager H. G. Wells who wished to "prove" in his "The Outline of History" that the Piltdown jaw and cranium really did belong to the same creature. Unable to come to Wells' assistance Lankester wrote: *"I think we are stumped and baffled! The most prudent way is to keep the jaw and the cranium apart in all argument about them."*

Suppressing Contradictions

Professor Henry Fairfield Osborn's 1921 contribution from the pen of the president of the American Museum of Natural History is boldly advertised as "The most important and complete (sic) work on human evolution since 'Darwin's Descent of Man.' It is the first full (sic) and authoritative (sic) presentation of what

has been actually discovered (sic) up to the present time in regard to human pre-history. All the known pre-human and human stages of development for the last five hundred thousand years (sic) are described as fully (sic) and fairly (sic) as the material allows." Fully! Complete! Authoritative! Fairly! And this is "science."

Doubtless all of the school children and many of their teachers examining the graphic "restorations" of Professor Osborn's exhibit fully believe these astounding claims, but whether they would believe them if the naked truth were presented at all or presented with half the graphic eloquence of the stubbornly persistent opinions characteristic of a desperate determination to present but one side, and that the broken side of a flimsy argument in support of a crumbling theory, is another matter.

Would it not be a prudent and a decent thing to inform the fresh and enthusiastic student of anthropology that there are now twelve complete opinions regarding the original Neanderthal skull? The original Neanderthal man has been described variously as an idiot, a Mongolian Cossack, an early German, an early Dutchman, an early Frieslander, a relative of the Australian Blacks, a palæolithic man, a primitive ape-man, etc., etc., etc.

Would it not be a candid thing to show that the outlines of the sagittal, median curve, drawn with Lissauer's diograph by Macnamara, are almost identical when the Neanderthal skull is compared with the skull of the modern Australian Black?

It is most unfortunate that science possesses no means of judging the geological age of the Neanderthal skull as pointed out by Professor Rauff, who, like so many others, is not included in Professor Osborn's bibliography.

The truth is that when Dr. Fuhlrott reached the quarry, the workmen had already thrown the loam containing the bones out of the cave and had partially destroyed the wall of rock. It was for this reason that the great Professor Virchow declared, as quoted by Professor Ranke in "Der Mensch," vol. II, p. 485: "Whether the bones were really in Alluvial loam, as is generally assumed, or not, no one saw. The whole importance of the Neanderthal skull consists in the honor, ascribed to it from the very beginning, of having rested in Alluvial loam, which was formed at the time of the early mammals."

The poor fellow may have lived after the loam was deposited in the cave and his bones may have become embedded in it centuries later. If this were the case there would be no need to discuss him further, for all speculation as to his importance to the theory of man's brute origin would simply fall to the ground. On this point Professor Virchow is very clear. He says: "We may certainly regard it as decided that the brain-cast bears no resemblance to that of an ape, and even if the cranium is admitted to be a typical race-cranium, which I consider quite unjustifiable, it does not by any means follow that we may deduce from this that it approximates to that of an ape." An ape, mind you, that does not now exist and of which no single trace has ever been found.

Even Professor Schaaffhausen, whose name is included in Professor Osborn's bibliography, declared in his "Der Neandertaler Fund," p. 49, as early as 1888: "In making this discovery we have not found the missing link between man and brute." Why, then, does Professor Osborn persist in describing it as the missing link?

All True Men

As pointed out by Erich Wasmann, "Modern Biology," pp. 470-471, 1910: "Recent investigations on the subject of the Neanderthal man and his Alluvial contemporaries all tend to confirm this statement."

In 1901 Professor Schwalbe, whose eminence is recognized by Professor Osborn, spoke of the Neanderthal man as a distinct genus. But only two years later, September 23, 1903, at the Seventy-fifth meeting of German Naturalists and Physicians at Cassel, he abandoned this opinion and attempted to show that the Neanderthal men ought to be considered not as a distinct genus but as a distinct species connecting the Miocene apes with man of the present time.

Professor Schwalbe gave to the Neanderthal man the description Homo Primogenus, which means primitive man. Professor Macnamara, an enthusiastic advocate of Schwalbe's method of examining skulls, demonstrated, "Archiv für Anthropologie," xxviii, 1903, pp. 349-360, that skulls resembling the Neanderthal skull in its various characteristics occur at the present day in Australia and Tasmania.

In fact they resemble each other more closely than either of them resembles the modern Lapp skull, yet, as pointed out by Professor Erich Wasmann, there is no living scientist who doubts that the Lapps and Australians must both be included in the same systematic species known as Homo sapiens, or true man. Kill one of them if you would determine whether or not a jury would convict you of murdering a man!

In comparing the Australian and Neanderthal skulls Macnamara says: "The average cranial capacity of these selected thirty-six skulls of Australian and Tasmanian Blacks is even less than that of the Neanderthal group," upon which embarrassing fact (not an

opinion) modern science is compelled to conclude that the Neanderthal skulls do not represent a distinct species of man and cannot be looked upon, therefore, as missing links, but must be classified as within the limits of variation of the species Homo sapiens."

Fate of a Scientific Freak

The famous Professor Gorjanovic-Kramberger, four of whose works published 1901, 1903, 1906 and 1909, are referred to by Professor Osborn, proves conclusively that modern science cannot and must not regard the Neanderthals and modern man as two distinct species, but merely two races of one and the same species. He says, "Biolog. Zentralblatt," p. 810: "It is perfectly plain that the human remains hitherto discovered in the Neanderthal, at Spy, La Naulette, Schipka, Ochas, and Krapina all belong to one and the same species. This is proved most clearly by the numerous remains found at Krapina, which present many of the characteristic features of modern man. It is proved also by many peculiarities that recur occasionally at the present day. There are now lower jaws still larger than the largest found at Krapina. We still meet with broad, square dental arches, badly developed chins and among the Australian Blacks genuine supra-orbital ridges."

Oh, how much has been made of these supra-orbital ridges which give the beetling brows and the ferocious appearance to the fanciful reconstructions of the missing links connecting the ape with modern man!

Professor Kramberger goes farther. He says: "I have in my possession a modern lower jaw with a smooth, thick basis such as we find in the jaws from Spy and Krapina. We occasionally see modern jaws with too many enamel columns near the molars, with

Courtesy Zoological Society.
Photograph by Edwin R. Sanborn.

Grandfather Orang, meditating on the plight to which the surviving members of man's ancestral race have been reduced by their ungrateful human brothers.

no projection at the chin. In fact even at the present day we can discover a number of features which in the older Alluvial epoch were the general characteristics of mankind and now occur occasionally by way of atavism, and on the other hand the older Alluvial human remains sometimes present modern characteristics. On this point Eric Wasmann says: "If a zoologist discovers a fossil form of wolf (meaning a wolf that no longer exists) having certain constant peculiarities distinguishing it from our modern wolf, he describes it as a separate species.

"Should he subsequently have more abundant material for comparison at his disposal and find then that none of the distinguishing features is constant, nor limited to one of the two forms under observation; should the characteristics of the fossil wolf recur in some modern wolves, and those of the modern wolf occur occasionally in the fossils, then the zoologist would alter his opinion and say: 'We have here not two distinct species but only two races of the same species.' Let us adopt the same method and be serious about the purely zoological classification of man and then we shall acknowledge the Neanderthal man to be only a variety of modern man."

Professor Kramberger says that the discovery of the Galley Hill man in England is quite extraordinary for the reason that the strata in which the skeleton was found were described as "early Alluvial," whilst the skeleton itself is like the late Alluvial remains found at Brunn, for which reason, if the Galley Hill man really belonged to the early Alluvial period, we must assume that there were in Europe at the same time two contemporaneous races of true men.

It will be noted that Professor Osborn discreetly ignores the now famous Galley Hill skeleton discovered in the Thames Valley. Its great age, as age is esti-

mated by the ape-man theorists, without regard for the preposterous discrepancies of their contentions, should rank it in importance with the Trinil freak and the Piltdown hoax to which he gives so much attention. What can be the motive behind Professor Osborn's curious silence? Perhaps a reference to Professor Arthur Keith's "Ancient Types of Man," 1911, will afford an answer. Keith says, (p. 32): "The first impression on examining the remains of this earliest known inhabitant of England is one of surprise, almost of disappointment; in all his features, with a few exceptions, *he is so modern in build that we might meet him on the streets of London today and pass him by unnoted.*"

This is disappointment indeed, for Keith, authoritative anatomist that he is, and so regarded by Osborn, believes in the monkey theory. Thus when he provides such a difficulty as the passage quoted there seems to be little choice for Osborn, who must not mention the fact at all. He must ignore it completely for the reason that as he presents his case the Galley Hill man, if permitted to testify, would throw it out of court. No wonder! Professor Keith, with no evidence whatsoever, demands 350,000 years for the period which has elapsed since the glacial skeletons were buried. Keith is an anthropologist of the highest standing but does not profess to rank as a geologist. G. F. Wright is an eminent geologist who makes no profession of expertness in anatomy. Wright says ("The Origin and Antiquity of Man," 1912, p. 195): "Large areas in Europe and North America which are now principal centers of civilization were buried under glacial ice thousands of feet thick, while the civilization of Babylonia (5,000 to 6,000 years ago) was in its heyday. The glib manner in which many, not to say most, popular writers speak of the Glacial Epoch as far dis-

tant in geological time, is due to ignorance of facts which would seem to be so clear that he who runs might read."

So Professor Osborn is confronted by two obstacles. The Galley Hill man discourteously refuses to furnish any ape-like characters that would serve the Osborn demonstration. The Galley Hill man as an index of the antiquity of the great group of skeletons for whom 350,000 years are claimed must knock off 344,000 years. That wouldn't do at all. Hence the only way to treat the unruly fellow is to ignore him and keep him out of sight. He is not related to any extinct anthropoid ape. Professor Kramberger recognizes no such relationship between the Neanderthals and apes of any kind.

Professor Osborn himself says, p. 4, American Museum of Natural History guide leaflet series No. 52, May, 1921: "Man is not descended from any known form of ape either living or fossil." But he is descended from something of which nothing exists!

Despite this admission Professor Osborn gives a most extraordinary prominence to the fanciful reconstruction of his Trinil Ape-Man, which is one of the most weird and wholly unscientific monstrosities ever included in any so-called scientific exhibit in Europe or America.

In an unguarded moment Professor Kramberger expressed the belief, "Biolog. Zentralblatt," p. 812, that the Neanderthal man and the Trinil Ape-Man belonged to the same period and as early as the Pliocene epoch the Trinil Ape-Man and the true man were distinct. Of course this is merely hypothesis as there are no human remains of the Tertiary period of any kind whatsoever. But assuming it to be true, like so many other assumptions along the line of this fanciful pedigree of man, it absolutely precludes the possibility that

the Trinil Ape-Man of Java could have been an ancestor of man, for the very excellent reason that they were contemporaries!

Like the Piltdown man, the Neanderthal man furnishes science with no evidence at all in support of the theory of man's descent from beasts. *Professor Schwalbe's Neanderthal man began by being the representative of a genus standing between an ape and man, then he became an ape-like species of man, and now finally he turns out to be only a race of true man!* Such is the evidence of the evolutionists themselves.

The true scientific fate of this creature as exhibited in Professor Osborn's brilliant progressive series is overshadowed by the spirit of poetic justice which manifests its ever-fresh confirmation of truth in the remarkable words of Professor Schwalbe himself, in the introduction to his work on the Early History of Man.

"Historical Facts" and Falsehoods

Professor Schwalbe there says: "Probably in no department of natural science is the attempt to draw general conclusions from a number of facts more liable to be influenced by the subjective disposition of the student than in the early history of man. On this subject it often happens that upon a few facts theories are based which are stated with so much conviction as easily to lead those, who have no special knowledge of the subject, to regard them as assured scientific certainties." Why did Professor Osborn, who has learned so many other things from Professor Schwalbe, not learn THAT?

It was poor Ernst Haeckel who gave so much inspiration to the exhibit at the American Museum of Natural History in New York City; to the illustrated article published in the *Popular Science Monthly*,

June, 1921, by Professor Charles Knight; to the astounding gratuities scattered by H. G. Wells through his "Outline of History," which was said, July, 1921, to have had a circulation of 200,000 sets; to the many fetching and brilliantly phrased editorials of Arthur Brisbane syndicated through a circulation of 5,000,000 daily and Sunday editions of the Hearst newspapers; to the soap-box speeches so frequently heard at the street corners of Manhattan, and to the many popular science contributions of young authors who glibly and facetiously hand out as scientific fact a stereotyped hodge-podge of sincere repetitions which, with all the enthusiasm of youth, they truly believe to be "aids to progress."

It is indeed no trifling matter to distort truth as Haeckel and so many other supporters of his theory of man's descent have done in popular lectures and works when they speak of that descent of man from beasts as a fact of history, thus misleading an unquestioning and uncritical public.

CHAPTER IV

The Last Link

The last link—Man appeared suddenly—The spy man—The Krapina man—The man of La Chapelle-aux-Saints—Brain already human—The La Quina lady—The Heidelberg man—Osborn versus Osborn.

In Haeckel's "The Last Link," published London, 1898, p. 76, he uses the phrase "an historical fact," yet his own pedigree of the primates published in his "Last Words on Evolution," London, 1906, exposes his "facts" for what they are. This pedigree is the product of pure imagination consisting of a mixture of wholly fictitious creatures with really existing creatures, the connection between them being as fictitious as the fictions themselves. From an imaginary remote ancestor which he calls the Archiprimas, Haeckel traces the hypothetical forefathers of our present lemuroids and apes in an unbroken line.

From a no less imaginary Archipithecus he traces the descent of a fictitious primitive gibbon which he calls the Prothylodates atavus. This creature was the forefather of a speechless primitive man who never existed, but which Haeckel calls Pithecanthropus alalus. He did not dare call this imaginary thing Pithecanthropus erectus for the very good reason that scientific research had shown him that this so-called fossil apeman could not serve as the missing link and he had to have a link that would be subject to no such refutation.

Building his ladder, he fixed Pithecanthropus alalus as the father of Homo stupidus, the stupid man, from whom finally Homo sapiens, modern man, is descended. And all this he calls "an historical fact." As such it is accepted by men of education who assert in all sincerity, "None but a fool would dare criticize the theory of man's descent from an ape because it is the commonly accepted opinion of mankind." The editor of a prominent New York daily used these words in a conversation with the writer as late as June, 1921.

Yet twenty years ago, August 16, 1901, in his closing address at the Fifth International Congress of Zoologists held in Berlin, Professor W. Branco of the Geological and Palæontological Institute of Berlin University took as his subject "Fossil Man" and completely refuted Haeckel's extravagant "historical fact," "The Last Link."

How is the modern follower of Haeckel to obtain opinions other than those handed to him by professors whose conclusions he is not tempted to question? Where thousands are smugly familiar with the "historical facts" of Haeckel, few indeed are those who have taken the pains to sift for themselves the overwhelming store of truth which puts to shame the "accepted," "unquestioned," "historical fact."

It is the habit of propagandists to believe that truth never overtakes falsehood, and as far as popular information is concerned something might be said in favor of their theory as one learns that few among the thousands who have accepted Haeckel with uncritical confidence have ever given heed to Branco or to any of the other distinguished anatomists, zoologists, palæontologists, anthropologists and biologists who during the last twenty years have demonstrated the soundness of his (Branco's) palæontological contentions, entirely disregarding his zoological views.

Man Appeared Suddenly

The principal facts developed by Branco can be briefly described: It is possible to trace the ancestry of most of our present mammals among the fossils of the Tertiary period. Man appears suddenly in the Quaternary period. There is no record of any ancestor of man in the Tertiary period. The so-called traces of human activity which some theorists have tried to associate with the Tertiary period are of a very doubtful nature.

The very first evidence of man's existence on this planet and all the other evidence thus far established proves that he made his first appearance at once as a complete true man. Most of the earliest human beings, the Neanderthals excepted, possessed a cranium of which any of us might be proud. They had neither excessively long ape-like arms nor excessively long ape-like canine teeth, but were genuine men from head to foot.

In confirmation of this the student can refer to "Modern Biology," Erich Wasmann, p. 478; "Der Mensch," vol. II, pp. 482-483; H. Obermaier, "L'Anthropologie," xvi., 1905, pp. 385-410, and xvii., 1906, pp. 55-80.

Shocking to the palæontologists who say they are anti-dogmatists but whose own dogmatism is more dogmatic than one would expect even from self-styled scientists is the truly scientific conclusion of Professor Branco: *"Palæontology tells us nothing on the subject—it knows no ancestors of man."*

The Spy Man

Referring to the Spy skeletons which can be covered briefly, it may be said that they were discovered June, 1886, in the terrace fronting a cave at Spy, in the prov-

ince of Namur, Belgium, by Marcel de Puydt and Maximin Lohest. These skeletons, now described by all scientists as No. 1 and No. 2, are, like most remains of their kind, not skeletons at all, though thus described, but parts of skeletons.

The skull of No. 1 is almost identical with the famous Neanderthal skull. Although both skulls were found together, skull No. 2 *"has a considerably higher and more convex forehead, the whole vault is higher as well as more spacious, and the form approaches in many respects that in modern man."*

The above is the official description as recognized and passed on by the Smithsonian Report for 1913. Professor Hrdlicka frankly admits that the brain cavity of skull No. 2 is like that of modern man. Even the lower jaw of skull No. 1 possesses the well-defined chin prominence characteristic of modern man. Both specimens are classified as Neanderthal men and are so regarded by Professor Osborn.

What, then, are we to say of the "reconstruction" of the Neanderthal man by Professor Osborn's assistant, Charles R. Knight, whose work for the American Museum of Natural History is one of its most conspicuous features? Knight says he was "a fierce, half-brutish savage, dwarfed by a large head which makes him seem smaller than he really is. His lowering face accentuates his squat ferocity. How low his forehead! What great bony ridges beetle his deep-set eyes! And his chin—where is it? A weakling, you argue, if the chin is any index of the strength of character. But this man was no weakling. Look at his profile; that deep and heavy jaw and the gorilla-like character that accompanies it. There determination is stamped. How strangely the whole face is projected in front of the eyes, and with it the heavy nose and the coarse, protruding lips."

Professor Knight says this is "science." He is advertised as a distinguished artist whose restorations of pre-historic animals and men have won for him national reputation.

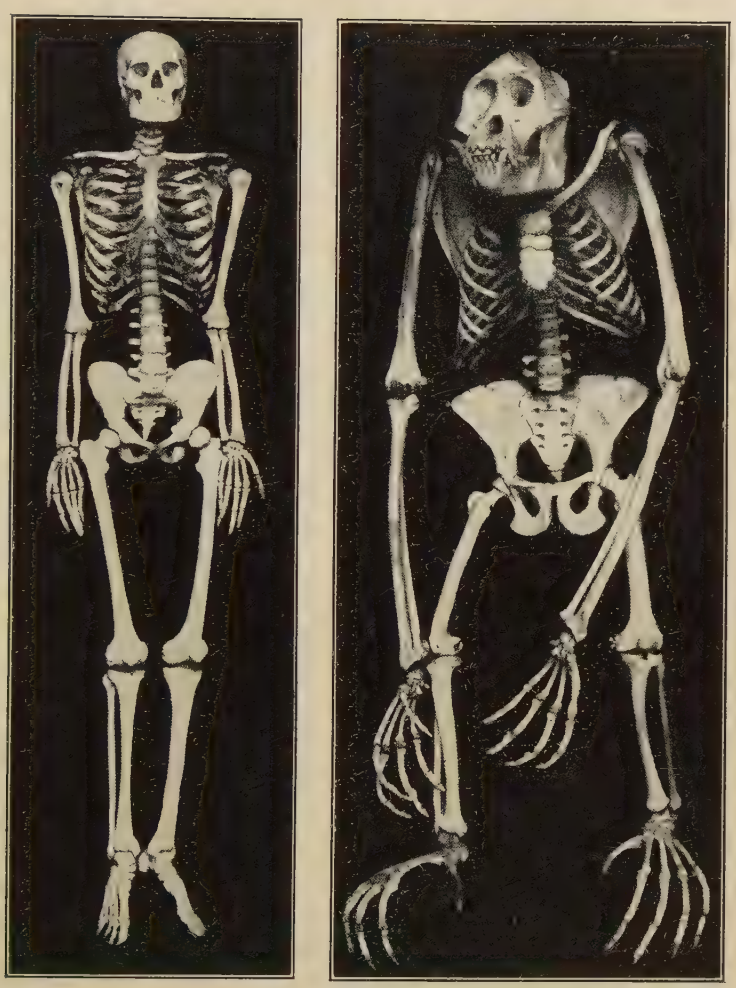
Alas, for the "long forearms suggestive of the gorilla." What becomes of them as the bones of the Spy skeletons are examined by anatomists? "A rather unexpected condition, found since in other skeletons of the Neanderthal man" says Hrdlicka, p. 38, Smithsonian Publication 2300, "is the relative SHORTNESS of the forearms." Moreover "the skeleton of the gorilla is not at all human in its appearance. The massive brute-like crests on the skull, the massive jaws and face, the long stout arms, the short lower limbs, with a thumb-like great toe (never seen in any human foot, even in the fœtus) seem to assure us that even this most man-like of apes is a long way off from man." The modern anatomist who makes this statement is none other than Professor Arthur Keith. See "The Human Body," 1910, p. 41.

The Krapina Man

Another important find, described as a Neanderthal man, consists of a series of human bones recovered from the Krapina cave in northern Croatia, by Professor K. Gorjanovic-Kramberger, between 1899 and 1905, following some minor discoveries in 1895 in the same cave by two Croetian teachers.

The bones represent the shattered remains of at least fourteen individuals ranging from childhood to ripe adult age. In fact most of the skulls and lower jaws are reduced to fragments of such a nature that Professor Kramberger was led to the opinion that "they represented the leavings of cannibalistic feasts."

Although classified as Neanderthal men, the bones of



Skeletons of man and chimpanzee compared. The bones of the chimpanzee have been placed in an artificial upright position. Examine "resemblances" closely.

the upper extremities, which are still capable of being studied carefully, are described as "perceptibly more modern in type than the Neanderthal and Spy bones," which themselves are so modern as to cause a strange and significant pause in the worn-out tendency to associate them with apes except by the most subtle inferences. Even the teeth of the Krapina jaws, particularly the canines, are remarkably like those with which the modern dentist is familiar. Pointing out certain peculiarities, Hrdlicka, who has personally examined them, says: "They are on the whole relatively near those of present man." Thus link after link is torn from the chain forged by honest dupes from the forgeries of tricksters.

The Man of La Chapelle-aux-Saints

Another Neanderthal skeleton is the Fossil Man of La Chapelle-aux-Saints, a small village south of the town of Brive in southern France. It was discovered August 3, 1908, by three Catholic priests, the Reverend J. Bouyssoine, the Reverend A. Bouyssoine, and the Reverend L. Bardon. The bones were carefully gathered and sent to Professor Marcelin Boule of the Museum of Natural History, Paris, where they were cleaned and as far as possible "restored."

Professor Boule ascribes to the skull a brain capacity of 1600-1620 c.c. The skulls of few professors in modern universities surpass in brain capacity the skull of this Fossil Man of La Chapelle-aux-Saints.

Professor Boule gives this skeleton a height of five feet, three inches, which is close to that of the Neanderthal man and the man of Spy. Though endowed with a large brain, Professor Boule is not disposed to grant that this, although normally always a very favorable feature, is necessarily an index of high intelligence. It wouldn't do! It isn't done!

Brain ALREADY Human

They would keep the Old Man of La Chapelle-aux-Saints as humble as possible. They would make him stupid if they could, though, of course, they know nothing about what went on within his brain pan. Professor Boule, like Dr. Hrdlicka, manifests his subjective disposition toward the Old Man by his use of the same word ALREADY. He says: "The brain on the whole is *already* human by the abundance of the cerebral substance; but this substance is still lacking the advanced organization which characterizes the brain of the actual man."

The innuendoes, intimations and presuppositions of this sentence eloquently reveal the weakness of the whole structure erected on the theory of man's brute origin.

What could Professor Boule know of the character of the cerebral substance that once filled the skull of La Chapelle-aux-Saints. Why does he say "the brain is ALREADY human by the abundance of the cerebral substance," but that "this substance," of which he knows nothing, "is still lacking (sic) the advanced organization (sic) which characterizes the brain of the actual (sic) man." Is this not an inference, carefully guarded, but none the less a dark inference, to the effect that the La Chapelle-aux-Saints man, though a Neanderthal man, is not an "actual" man?

John Lubbock (Lord Avebury) was not so positive concerning his ability to judge the quality of cerebral substance that once occupied a "very ancient skull." Speaking of the skull discovered by Dr. Schmerling in the Cave of Engis, near Liége, he says ("Pre-historic Times," sixth edition, New York, 1910, p. 317): " . . . is no doubt very ancient. As regards form, however, it might have been that of a modern European." And

so he goes on to quote Huxley ("Man's Place in Nature," p. 156): "There is no mark of degradation about any part of its structure. It is, in fact, a fair average human skull, which might have belonged to a philosopher (sic) or might have contained the thoughtless brains of a savage." There was no means of telling. Professor Boule, please note!

Professor Osborn has announced in connection with the Boule "restoration" of the La Chapelle-aux-Saints skull that Professor McGregor is now engaged upon the reconstruction of the entire skeleton and body of the Neanderthal man. He says: "We may predict that this life-size Neanderthal model will be one of the most interesting exhibits in the American Museum when the work is finally completed, after the many years of laborious study and research put upon it."

Influenced as he is by Professor Boule, we may predict what kind of a restoration of this Neanderthal man will make its appearance when under the stimulation of Professor Osborn it does appear. It will hardly be an "actual" (sic) man, certainly not a philosopher. Professor Boule has seen to that. What, then, will it be if not a sub-man, or a half-man, or a half-ape, or, right back to where we started, another try at an Ape-Man! What will it signify? Professor Keith in 1911 ("Ancient Types of Man") was certain that "the Neanderthal type represents the stock from which all modern races have arisen." Four years later ("The Antiquity of Man," 1915) he reverses himself completely and without apology by declaring that the races of man known as Neanderthal have completely died out. The question may well be asked: "What do any of the reconstructionists know of the Neanderthal man?"

The La Quina Lady

Still another Neanderthal skeleton, known as the La Quina skeleton, was reported, October 16, 1911, by Dr. Henri Martin, a physician of Paris, to the Academie des Sciences. The La Quina skeleton is not a skeleton but what remains of a skeleton, thus necessitating the usual "reconstructions." Little need be said concerning it other than that it presents characteristics similar to all the others of the so-called Neanderthal group.

Dr. Martin, with no little enthusiasm and a modicum of modesty, has created from the La Quina bones a lady of remarkable quality. Concerning this old-fashioned female, Dr. Hrdlicka says without further comment: "An ingenious effort at a reconstruction of the head and neck of the La Quina woman by Dr. Martin will be found in the Bulletin de la Société Prehistorique Française, 1913."

Of course the time will come, and probably soon, when some of the professors now holding extravagant and wholly untenable views will abandon their present position of insistence upon the "squat ferocity" and other powerful brute-like characteristics of the Neanderthal man.

Even now there is a tendency to abandon the very pictures which have been getting into print as late as June, 1921, through such publications as the *Popular Science Monthly*. Referring to the La Quina skeleton, Dr. Hrdlicka says, p. 57, "The Most Ancient Skeletal Remains of Man," from the Government Printing Office, Washington, D. C., 1916: "The long and other bones, so far as saved, indicate an individual of moderate stature and good, but not excessive musculature." What about the "gorilla-like muscles and the squat ferocity?" How did Professor Knight, in conference

with Professor Osborn, ever arrive at such phrases in their description of creatures who, as we shall see, were quite normal in every human way?

The Heidelberg Man

Famous among the relics described as "a precious document of man's evolution" is the Mauer jaw, sometimes called the Heidelberg jaw, discovered October 21, 1907, by two laborers near the village of Mauer in the Elsenz Valley, about six miles southeast of Heidelberg. This jaw is now preserved in the Palæontological Institute of Heidelberg University. It is featured as the largest jaw thus far discovered. Its teeth are well preserved and are described as unquestionably human.

Professor Osborn says of it that it represents "a race which was perhaps the predecessor of the Neanderthal man in Europe."

"It would seem," he declares, "Men of the Old Stone Age," p. 100, "that in the jaw and probably in all other characters of the skull (sic), as they become known (sic) the Heidelberg race will be found to be a Neanderthal in the making, that is, a primitive, more powerful and more ape-like (sic) ancestral form.

"In the matter of the receding chin, the true Neanderthals of Spy, Malarnaud, Krapina, and La Chapelle rank EXACTLY HALF WAY (sic) between the most inferior races of recent man and the anthropoid apes (sic) . . . all agree that the discovery affords us one of the great missing links (sic) or types in the chain of human development."

There is no skull with this lower jaw, which was discovered seventy-nine feet from the surface. Consequently Professor Osborn can know none of its "other characters," which point of vagueness he illumines by

modifying his thoughts with the words "as they become known." Concerning this Dr. Hrdlicka says, p. 23, "The Most Ancient Skeletal Remains of Man": "There can be but little hope that other parts of the same skull or skeleton will ever be recovered." So struggles hope with despair for both are the offspring of opinion.

One of the odd features of this Heidelberg massive jaw with its comparatively small teeth over which so much fuss has been raised is the fact that Professor Birkner, in the collection of the Munich Institute for Palæontology, exhibits a modern Eskimo skull in which exactly the same features occur. See third lecture, Innsbruck series, Erich Wasmann, October 18, 1909, for confirmation of this. Those who are so disposed can use the modern Eskimo in elaborating a new missing link of their own. Perhaps Professor Osborn does not know of the existence of this modern Eskimo jaw, for he makes no reference to it of any kind in his latest work, "Men of the Old Stone Age."

Osborn does admit, p. 232 of the same work, that "the long Neanderthal face is somewhat similar to that of the Eskimo, and is in contrast with the very short face of the existing Australians and Tasmanians." He even admits that the "Neanderthal nose, far from resembling that of the anthropoids, differs from it more than does that of some recent human types." He refuses to accept the conclusions of the many anatomists who have followed Huxley in their description of the Australian and Tasmanian skulls as "Neanderthaloid."

Osborn versus Osborn

At this point he stumbles into an embarrassing contradiction. He insists with emphasis that the Nean-

derthal race is the immediate predecessor of modern man, p. 8, American Museum of Natural History, guide leaflet No. 52. Yet in "Men of the Old Stone Age," pp. 233-234, he rushes to the support of Professor Boule by quoting the latter as follows: "All these modern so-called Neanderthaloids are nothing but varieties of individuals of Homo sapiens (modern man), remarkable for the accidental exaggeration of certain anatomical traits which are normally developed in all specimens of the Neanderthal man.

"The simplest explanation of these accidents in most cases is atavism or reversion. We cannot assert THAT THERE HAS NEVER BEEN AN INFUSION OF NEANDERTHALOID BLOOD IN THE GROUPS BELONGING TO SPECIES HOMO SAPIENS (modern man) BUT WHAT SEEMS TO BE QUITE CERTAIN IS THAT ANY SUCH INFUSION CAN HAVE BEEN ONLY ACCIDENTAL, FOR THERE IS NO RECENT TYPE WHICH CAN BE CONSIDERED EVEN AS A MODIFIED DIRECT DESCENDANT OF THE NEANDERTHALS."

Was there ever such contradiction,—"the Neanderthal race is the immediate predecessor of modern man, yet no modern man can be considered even as a modified direct descendant of the Neanderthals." The oak is the immediate predecessor of the acorn, yet there is no acorn which can be considered even as a modified direct descendant of the oak. In vaudeville they would call this a scream. But it isn't vaudeville, it's science. The science of the materialistic evolutionist who so loses his way in his own forest that he can never hope to retrace his own steps.

What is the purpose of this scientific hodge-podge which leans so heavily upon false insinuations? Children visiting the American Museum of Natural His-

tory are incapable of analyzing the flimsy contradictory opinions presented to them through the means of graphic illustrations. They cannot see nor can they hope to see anything but "facts" in the feeble and barren speculations thrust upon them. Professor G. Steinmann says ("The Theory of Evolution," Karl Frank, p. 230): "The current evolutional hypotheses have driven me almost to despair. When a scientific branch of such predominant importance as the theory of descent gets off the proper track it naturally detrimentally influences all the branches of knowledge with which it is organically associated.

"So it is also with palæontology, which instead of having an independent basis has become a vassal of the Darwinistic-Haeckelistic theory of evolution. It has taken the significance of the formation of species, without proof, into the area of fossil material. No wonder, then, that palæontology could not follow these academical prescriptions, and, when it tried to do so, made a fiasco."

Professor Ch. Deperet says ("Umbildung der Tierwelt," p. 113): "The embryological methods of Haeckel have led the whole of palæontological research in a wrong direction. The naïve pedigrees constructed according to them have crumbled just as speedily as they have arisen. They cover, as with rotten wood, the ground of the forest, and only render more difficult the progress of the future."

CHAPTER V

The Gibraltar Man

The Gibraltar man—A "scientific" explanation—The Maustier man—The Taubach teeth—Other jaws—Other Neanderthals—Wiping them out—Confusion knows no bounds—The St. Brelade man—Osborn's dilemma.

The manner in which the whole brute theory is forced with subtle plausibility to seem to be that which it is said to be but which, when scrutinized with ever so little care, it is found not to be, is nicely exposed by the Gibraltar skull. This skull now preserved in the Museum of the Royal College of Surgeons, England, was photographed through the courtesy of Professor Arthur Keith, curator of the institution, by Dr. Ales Hrdlicka, curator, Division of Physical Anthropology, United States National Museum.

On plates 11, 12 and 13, Smithsonian Report, 1913, Hrdlicka presents three photographs, front view, side view and top view, of the specimen. Professor Osborn in his 1921 edition of "Men of the Old Stone Age," p. 215, presents a much-reduced reproduction of the Hrdlicka photograph, full face only.

There is room on the same page, now occupied by white space and by nothing else, for the side view and the top view. Professor Osborn ignores them, though on p. 224 of the same book he is pleased to present front, side and top view of the toothless old man of La Chapelle-aux-Saints.

Not only what he fails to present, but what he fails to say, is significant. Nobody knows anything con-

cerning the history of the Gibraltar skull. It was first mentioned in Falconer's "Palæontological Memoirs," published 1868. Professor Osborn, quoting Dr. Hrdlicka, had before him the matter quoted, from which the following is significant: "No record exists of the precise circumstances under which this interesting relic was found." It was "yielded by the rocks many years since."

Professor Keith, relying upon Professor Broca, who failed dismally to record the facts of the discovery of the Gibraltar skull, if he ever knew them, thinks it was taken out from a "very compact and adherent gangue" in Forbes quarry on the north front of the rock of Gibraltar as early as 1848. Nobody knows in what year it appeared for the reason that nobody paid any attention to it after it did appear until many years later.

Mentioning its examination by Huxley, Quatrefages, Hamy, Macnamara, Klaatsch, Schwalbe, Sollas, Sera and Keith, Dr. Hrdlicka says: "It is now universally regarded as a representative, possibly a very early one, of the Neanderthal man."

Describing the aspect of the face as "semi-human, apish," Dr. Hrdlicka says: "The upper alveolar process is largely absorbed, so that we cannot judge of the original prognathism, which however was doubtless well marked." Why does Dr. Hrdlicka use the word DOUBTLESS when he himself admits, and his photographs show, that he couldn't judge, with doubt or without doubt, for the reason that there is nothing there to judge.

A "Scientific" Explanation

With certainty Professor Osborn declares that the Gibraltar skull was discovered 1848 by Lieutenant Flint. He says it is well preserved and that the face

Courtesy Zoological Society.
Photograph by Edwin R. Sanborn.

Gorilla's face. Compare with the imaginary heads of the Trinil Ape-Man and Neanderthal Man in the progressive series as restored by J. H. McGregor, in the group of three busts. The gorilla's face is hidden behind a dense thicket of whiskers. The Trinil Ape-Man is an improvement on this beast, but has lost his whiskers. The Neanderthal Man, which is a further improvement on the Trinil Ape-Man, has regained his whiskers. The Cro-Magnon Man, as you will note by referring to the group of three busts, must have been the inventor of the razor. His face is smooth. When did beards evolute, and why did the Trinil Ape-Man grow up without one?

and base of the cranium are remarkably complete. The base of the cranium is remarkably complete, but the face is sadly defective. There is no lower jaw at all, and, as we have seen, the upper alveolar process is largely absorbed so that there can be no judgment of any kind concerning the original prognathism. Yet that word DOUBTLESS stands!

Curiously (Men of the Old Stone Age, p. 216) Professor Osborn says he doesn't know where the skull was found, and that although its archæologic age cannot, therefore, be determined, it probably belongs to the Mousterian period. He might as well have guessed anything else as that, but guessing is not science—guessing is opinion and very often very poor opinion, as in the case of the bull seals which will tell their extraordinary story a little later.

The Gibraltar skull is a very small skull. The cranial capacity of the average adult white woman of the present time is about 1325 c.c. Professor Keith gives the cranial capacity of the Gibraltar skull as 1100 c.c.

Dr. Hrdlicka says: "There is a *marked and quite heavy* supra-orbital arch" ("The Most Ancient Skeletal Remains of Man," p. 25).

Professor Osborn says: "The *slight development* of the supra-orbital ridges and the small size of the brain are explained by the theory that the skull belonged to a female." What about the contradiction?

Of course there must be an explanation. This kind of science wouldn't be science if it couldn't explain. Consequently a new theory is formulated with the development of every difficulty, until there are so many theories that the older ones are accepted as "historical fact" by students who fail to take the trouble to trace them to their origin.

In all the darkness and confusion, in all the guarded admissions and skilfully avoided references to embar-

rassing difficulties Professor Osborn finds peace and conviction. Completing his references to the Gibraltar skull he says (p. 217): "The type skull of this great extinct race of men is that of Neanderthal, appreciated by Lydell and Huxley, but passed over by Darwin, AND FINALLY ESTABLISHED BY SCHWALBE AS THE MOST IMPORTANT MISSING LINK BETWEEN THE EXISTING SPECIES OF MODERN MAN AND THE ANTHROPOID APES."

That is what Professor Osborn intended to say from the beginning. That is what he started out to say. And he said it—though upon what he based the statement he has no where disclosed. Science? Alas!

The Moustier Man

Of the insignificant specimens admitted to be defective, unsatisfactory and of little help to the "scientist" bent on establishing the theory of man's brute origin there should perhaps be some hasty mention here of the Moustier man discovered March, 1908, by O. Hauser, at Le Moustier, France. Professor Klaatsch regards the skeleton as that of a boy of sixteen years, classifying him as Neanderthal.

The Taubach Teeth

Described as "of little value," because of the uncertainty of their meaning in human chronology, are other specimens which even Hrdlicka passes over with scant notice. They are the two teeth of Taubach. One of these, a molar, was found at Taubach, near Weimar, Germany, 1892, by A. Weiss. The other, also a molar, was found by a laborer in the same district. Their chief dignity consists in a claim that when discovered they were resting in old Quaternary deposits.

Other Jaws

May, 1914, a lower jaw was found near Weimar, not far from Taubach. Schwalbe assigned it to the Neanderthal class. A lower jaw was found, 1889, in the cave of Malarnaud, near the village of Montseron, France. Another lower jaw was found, 1866, in a cave at La Naulette, Belgium, with a few fragments of human bone.

The fragments of a lower jaw of a child, age 8 or 10 years, was found, 1880, in the Sipka cave, near Sternberg, Moravia.

Other Neanderthals

Between 1909 and 1912 Capitan and Peyrony gathered the parts of several skeletons at La Ferrassie. They also found, 1909, in the cave of Pech de l'Aze, near Sarlat, a child's skull, all of which were turned over to Professor Boule who has already described them as Neanderthal.

Other skeletal remains can be described as the Ochoz, Brux, Brunn, Canstadt, Combe-Capelle, Eguisheim, Galley Hill, Ipswich (parts of skulls and skeletons) and a lower jaw discovered at Banolas, Spain.

Wiping Them Out

The Predmost remains discovered by Professor K. J. Maska, at Predmost, Moravia, consist of the skeletal parts of twenty bodies, fourteen of which are in excellent condition, some of the skeletons being almost complete. Hrdlicka who has seen the collection, says: "It represents in a measure the much-searched-for bridge between the Neanderthal and recent man." (Smithsonian Publication 2300, p. 62). He probably wishes he had never made this statement. However, as he has not corrected it, it stands against him.

Osborn complicates this opinion by asserting ("Men of the Old Stone Age," p. 257) that the Neanderthal, in Hrdlicka's judgment, partly evolved into the lower races of Homo sapiens, and that traces of Neanderthal blood and physiognomy are not lacking even among modern Europeans. Osborn himself holds that there have been no "partly evolved" (whatever that may mean) factors in the whole business, but that on the contrary the Neanderthals were a side branch of the human race which became wholly extinct, leaving no trace of itself of any kind whatsoever, except a few bones.

In this opinion Osborn derives satisfaction for the reason that it is shared by Boule and Schwalbe. As to just how long it will be so shared he is not so sure, for he says: "It is possible, however, that the skeletons discovered at Predmost may modify this conclusion and demonstrate Hrdlicka's theory that the Neanderthals survived and left descendants along the valley of the Danube."

At any rate, Osborn maintains the belief that after degenerating physically and industrially (which is not much of an evolution) they were wiped out some 20,000 or 25,000 years before our era by the superior Cro-Magnons, another race of cave men. See "Men of the Old Stone Age," pp. 257-258. In the meantime, Professor Arthur Keith, Royal College of Surgeons, who, as one of Europe's most distinguished authorities is recognized by Osborn, takes all the facts in the case, and in a single statement smashes the missing link significance of the Neanderthals: *"We are compelled to admit that men of modern type had been in existence long bfore the Neanderthal type"*—another case similar to the appearance on earth of the horse before its supposed ancestors were born—another case not of evolution but of degeneration.

Confusion Knows No Bounds

The generosity of Osborn in assigning hundreds of thousands of years to his age periods is worthy of note for the reason that he fixes the beginning of the age of man at some 500,000 years ago. On this point Karl Frank ("Theory of Evolution," London, 1913, pp. 18-21), throws a strong light revealing obstacles that must arrest the unreckoning and impulsive speed of the too eager driver. He says: "It is only when it is known which stratum or layer is older or younger than another that we can also know which organisms are older or younger than others accordingly. This determination of the age of the earth's strata is, however, a very difficult matter, and the course of evidence which led to the generally recognized arrangement of the four (or five) groups of formations, is not far removed from a vicious circle, especially when we consider the mode of expression used by many authors. (Compare the methods of age-determination by E. Kayser, "Lehrbuch der Geolog. Formationskunde," Stuttgart, 1909, p. 2; and also the Introduction of M. Neumayr, Erdgeschichte II.)

"The uncertainty which exists, if we accept the usual division into separate groups determined by age, may be judged by the following short consideration: If it be no longer a question whether the organisms generally vary, but rather how they transformed themselves, then it is not sufficient to compare formations differing considerably in age, but those immediately following each other must be known, since it is only when it is known which formation was the next to be deposited, that the further fate of a definite organic group can be properly followed up without a break.

"The next younger, which we will call 'b,' need not necessarily be deposited over stratum 'a' which has

just been formed, but may originate in quite another region. The stratum 'a' can, for instance, become dry land by the retreat of the sea in which it was formed. The sea itself departs, together with its organisms, which hitherto had been buried in 'a,' to some other region and *there* deposits the successors of the organisms buried in 'a.' If there be no means of recognizing this next younger deposit, or if it be again covered by the sea, then nothing can be said regarding the evolutionary progress of such a group, or at least there exists a gap. Then it may happen that the animal groups, which we learnt to recognize in the strata complex 'a,' in that deposit ('c') in which we meet them again for the first time, show an entirely peculiar appearance, so that at the first glance no one would think of any connection with the fauna of 'a.'

"If, however, the groups of formation 'a' show a distinct tendency to vary in a definite direction, and if from a comparison of the fauna of 'c' with that of 'a' it is seen that the heterogeneousness consists in a great but apparently interposed increase of just those variational tendencies evinced in 'a,' then it may be assumed with great probability that the organisms in 'c' are the modified offspring of those of 'a.' The intermediate links lie buried in 'b,' and this formation is possibly now and has been for a long period covered with water and therefore inaccessible to us. The same process can also be repeated for 'c.' One of the fauna of 'c' approximating thereto, but greatly modified, may for instance only be found again in an obviously much younger formation, say in 'f,' and this may be in North America while 'c' may be in Europe. (The strata 'd' and 'e' lie perhaps under water or have not been investigated.)

"If we accept a connection between 'f,' 'c,' and 'a,' then we have obviously only important outposts as it

were in the march of evolution of a particular group, and perhaps also a general indication how the outpost 'f' can have been derived from 'c' and 'a,' but without any precise knowledge of the process involved.

"Only in a few cases: as, for example, the same sea in which the formation 'a' was deposited, may, in a short time, return to its old position (sea oscillations), and consequently the same organisms also return, so that in the stratum 'b' which is formed after the return we have before us the immediate descendants of 'a.' Several such cases can be recognized with sufficient certainty. Then by comparing 'b' and 'a' we arrive under certain circumstances at a clear insight into the mode of variation and its rapidity, etc.

"If the fauna of 'a,' or a group of the same, should not, generally speaking, reappear, and is no longer seen at the present day, then it is 'extinct.' How and when it became so, we are so far ignorant.

"It is therefore seen how difficult it is to make clear the process of evolution for a definite group. Many geologists entirely despaired of the possibility of so exact a definition of the ages of the formations as was needful to that end. Incomplete, very incomplete indeed, must our knowledge ever be."

The confusion knows no bounds. The astronomers arriving at an estimate of the world's age through theories based on energy and heat conclude that this planet came into existence 100,000,000 years ago.

The geologists on the other hand are quite certain the world is 500,000,000 years old. Here we confront a chasm in which is buried a difference of some 400,000,000 years between the two scientific theories. Like Mr. H. G. Wells, we can do little more than anyone does who takes a long breath, a short run and spans such spaces in a jump. Later we shall return to this spectacular dispute on "age" for another purpose. For

the present it is sufficient to add to the conflict by the reminder that man has been given a life on this planet of some 500,000 years. Of course the scientific world was shocked when Theodore Moreaux, director of the observatory at Bourges, entered the controversy by asserting, February, 1921, that these extraordinary figures, as all the fossils show, are preposterous, and that the human race cannot boast of more than some thousands of years instead of the hundreds of thousands claimed by the palæontologists.

Doubtless there will be a controversy, but there need be none that will occasion surprise. There has never been anything else on the subject of the earth's age. No two geologists are agreed on any detail of their speculations, and in their divergence of opinion they range from hundreds of millions down to ten thousand years. Penck asserts that the post-glacial period in which we are now living must have lasted for at least 20,000 years. Sollas insists on not more than 7,000 years. Wright furnishes much evidence to prove that 5,000 years covers all the requirements of science. De Geers offers proof to show that it is 9,000 years since the ground on which the University of Stockholm stands became free from ice, and that the conditions observable in a post-glacial lake bed in Sweden prove that the ice left that particular region 5,000 years ago.

All the views put forward respecting the earth's age are extremely tentative and contradictory, as we shall see, further on. No other subject of science is so shifting, so uncertain, so crammed with conflict, yet the ape-man evolutionist settles upon age periods according to the dictates of the scheme he is trying to support. As he finds them necessary to his formula he adopts them, as if they had a scientific status. Charles Darwin never ceased to dread these difficulties, which so upset him that at times he was actually ready to aban-

don the whole theory of evolution as something which got farther and farther away from proof as its followers got farther and farther into its difficulties. Writing to Alfred Russell Wallace, July, 1871, he moaned: *"I feel sick of everything and if I could occupy my time I would never publish another word. I can say nothing more about missing links than what I have said. I should rely much on pre-silurian times; but then comes Sir W. Thomson, like an odious spectre."*

Explaining this expression of disappointment and chagrin, Darwin's son, Francis, says ("Darwin," 1893, p. 292): "My father, as an evolutionist, felt that he required more time than Sir W. Thomson's estimate of the age of the world allows."

Obviously Darwin had some foretaste of the future with respect to "missing links." He felt that they were but a sieve and yet of such a sieve he had to construct the bottom of his pail, knowing that it would not hold water when complete. Hence the further difficulty presented by Sir W. Thomson plunged him into despair.

The St. Brelade Man

Of the palæontological evidence so clumsily fabricated in support of the theory of man's brute origin little else remains to be described. There are twelve teeth reported 1910 by E. T. Nicolle and J. Sinel of the Island of Jersey in "Man," volume 10, No. 102, pp. 185-188. These teeth were discovered in an old cave on the Island of Jersey, and are described as "belonging to a man of the Moustierian epoch."

The cave is known as La Cotte de St. Brelade. It opens into a rough, irregular cliff near the eastern horn of St. Brelade's Bay. Repeated explorations, carried on between 1881 and 1910, have revealed no

other human relics within the cave, although it has been systematically explored even to the sifting of nearly every particle of débris, black soil, ashes, carbonized wood and clay, etc., within its confines.

On the assumption that all the teeth must have belonged to the same skull, Messrs. Keith and Knowles have reconstructed the upper and lower dental arches of the St. Brelade man. All the teeth are large, consequently the reconstructed dental arches are considerably larger than they would be if they were smaller than they are. This statement, seemingly facetious, is quite as scientific as it ought to be. It reports the truth, and nothing but the truth.

Hrdlicka says (Smithsonian Publication 2300, p. 48): "They (the Jersey teeth) show an early man, probably an earlier representative of the Neanderthal man, already quite advanced in dentures from the pre-human forms (what pre-human forms?), but still with teeth much more powerful as well as less specifically differentiated than those of present man."

We have seen that there have been no "pre-human forms" and that the scientists who continue their eager search for "pre-human forms" have confessed that as far as their efforts have been rewarded there are no "pre-human forms." That is, indeed, an historical fact. It cannot be repeated too often. Why, then, the Hrdlicka statement to the effect that in these Jersey teeth we see a Neanderthal man in the making, one already considerably improved on the earlier editions issued in a progressive series so full of evolutionary advancement that the well-defined mile posts along the route are appreciated by the most casual observer. There is no questioning the sincerity of Hrdlicka. He really believes just that, because that is what he has been taught to believe.

In the accumulations of another cave with a com-

munication between the two there may yet be found further "surprises" equal in significance to all the other surprises thus far reported by science. Even now (1921) an effort is being made to locate them.

Referring to the chief feature of the Jersey surprise Osborn says ("Men of the Old Stone Age," p. 226): "The roots, instead of tapering to a point below, as in modern man, form a broad stout column, supporting the crown, adapted to a sweeping motion of the jaw. THIS SPECIAL FEATURE ALONE WOULD EXCLUDE THE NEANDERTHALS FROM THE ANCESTRY OF THE HIGHER RACES." Here we have confirmation of one of our own surprises and are accordingly surprised all the more.

Thus it would appear that if we moderns are "the higher races" the Neanderthals were not our ancestors at all, and therefore cannot be regarded as the missing links connecting us with the ape.

Professor Osborn is in considerable doubt on this point, despite his scientific convictions and regardless of his final exclusion of the Neanderthals from the ancestry of modern man. He says ("Men of the Old Stone Age," p. 7): "Between 1848 and 1914 successive discoveries have been made of a series of human fossils belonging to intermediate races: some of these are now recognized as missing links between the existing human species, Homo sapiens, and the anthropoid apes; and others as the earliest known forms of Homo sapiens."

Osborn's Dilemma

Professor Osborn proves by his own table of these successive "discoveries" that he is conscious not merely of confusion but also of misstatement. Mentioning seventeen discoveries in chronological order from 1848 to 1914, he says, let us repeat: "*Some of*

these are now recognized as missing links between the existing human species and the anthropoid apes.''

Of the seventeen discoveries ten are Neanderthal. But these, he says, are not missing links. Professor Arthur Keith won't let him. Therefore we must find the missing links among the remaining seven discoveries.

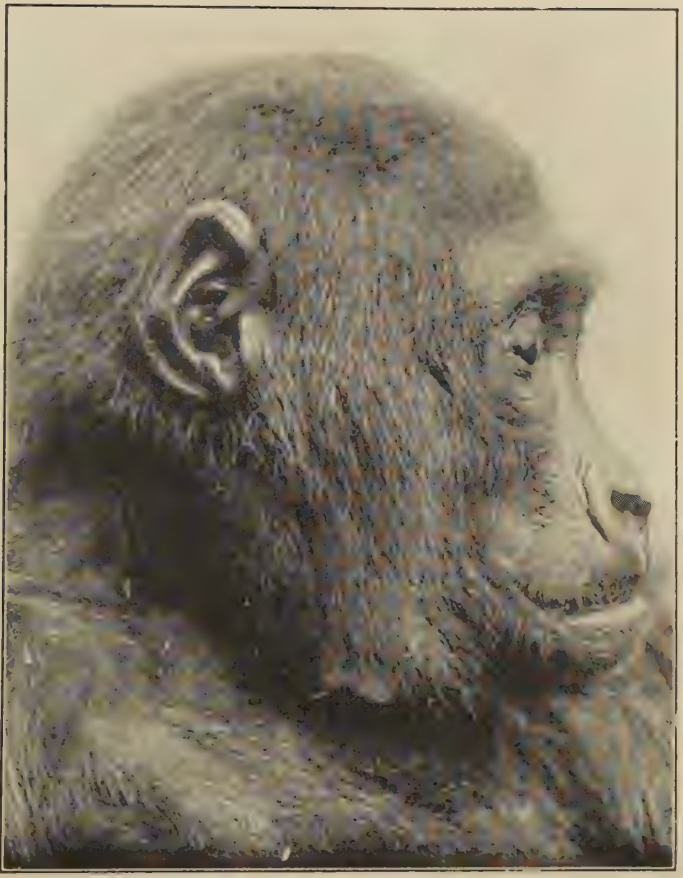
One of the remaining seven discoveries is the Trinil Ape-Man, whose ignominious collapse is treated elsewhere in this review. As no scientist, however rash, can now describe the Trinil Ape-Man as the missing link, there remain but six discoveries to which Osborn could possibly refer. One of these six is the exploded Piltdown man, whose disgraceful history needs no further attention here.

This leaves but five discoveries, some of which *''are now recognized as missing links.''* One of these five is the Heidelberg jaw.

Of this Heidelberg jaw Osborn himself says, p. 99: ''It is absolutely certain that these remains are human. They show no trace of being intermediate between man and the anthropoid ape. In comparison with the jaws of Neanderthal races, as found at Spy, in Belgium, and at Krapina, in Croatia, we may consider the Heidelberg jaw as pre-Neanderthaloid.'' Page 100 he says: '' . . . . as they become known the Heidelberg race will be found to be Neanderthal in the making, that is a primitive, more powerful and more ape-like ancestral form.''

This Heidelberg jaw must then be one of the discoveries recognized as missing links between the existing human species and the anthropoid apes, though Osborn himself says it is no such thing in one breath while suggesting it must be just such a thing in the next.

The Neanderthals and the pre-Neanderthals must be



Courtesy Zoological Society.
Photograph by Edwin R. Sanborn.

Gorilla profile. Note supra-orbital ridge over eye; absence of chin. Also note bushy side-whiskers. The ape-man evolutionist informs us that the Negro is closer to this creature than the white man, yet the Negro's brow is wholly free from the supra-orbital ridges which some white men possess to a marked degree. Compare ear and brow with ear and brow of orang. The cranial capacity of both creatures approximates 600cc. as against 1550-1880cc., the cranial capacity of the Cro-Magnon Cave Man.

human beings—true men—or they must be missing links connecting true men with apes. At times Professor Osborn infers they are this and at other times he intimates they are that. However, as science does not recognize the Heidelberg jaw, regardless of Professor Osborn's confused statements, as a missing link, there remain but four other discoveries to justify his vague declaration. These are two skulls, discovered 1867, at Furfooz, Belgium; three skeletons and fragments of two others discovered 1868 and known as the Cro-Magnon, Dordogne; two skeletons discovered 1901, in the Grimaldi Grotto, Mentone, and two skeletons discovered 1914 at Oberkassel, near Bonn, Germany.

Two of these, 1868 and 1914, are described as "comparatively modern Cro-Magnon true men" and cannot, therefore, be recognized as missing links. There are many living creatures who don't compare with them at all except to suffer by the comparison.

The Furfooz skulls were discovered by Dupont, 1867, in a cave near Furfooz in the Valley of the Lesse, Belgium. They are described as a highly developed race of men whose descendants are the broad-headed races now found in Holland and Denmark. Osborn himself quotes this opinion ("Men of the Old Stone Age," p. 485). Of course he does not refer to the Furfooz skulls as recognized missing links. There is nothing left, therefore, but the Grimaldi skeletons of 1901, found in the Grottes de Grimaldi, near Mentone, described as displaying "a number of resemblances to the African negroid race."

Hrdlicka gives no description of the Grimaldi remains and enters into no discussion concerning them. Boule is responsible for most of the ideas now in circulation regarding the bones found in the Grimaldi Grotto, which really consist of two sets of remains—

those belonging to the African negroid race and those belonging to the Cro-Magnon race.

Since both of these races are assigned to the Upper Palæolithic, whereas the Neanderthal race is confined to the Lower Palæolithic, it follows that we are farther away from the missing link than ever, for certainly no son could have ever appeared before the birth of his father. Consequently, it is not difficult to explain Professor Osborn's unscientific failure to be specific when he declares that of these seventeen discoveries "some are now recognized as missing links between the existing human species and the anthropoid apes."

The reason that Professor Osborn avoids specific mention of a single one of the seventeen discoveries as a missing link is because there is no missing link among them. By his careful avoidance of any suggestion of identification he provokes thoughts too deep for words. Whom, then, does he intend to impress when he says:

"SOME OF THESE ARE NOW RECOGNIZED AS MISSING LINKS BETWEEN THE EXISTING HUMAN SPECIES HOMO SAPIENS AND THE ANTHROPOID APES." Children constitute the vast majority of the throngs who visit the Osborn exhibit. Must children be impressed with this sort of science?

CHAPTER VI

A Blighted Ancestral Tree

'A blighted ancestral tree—At the end of a sawed-off branch—The Rhodesia man—Whorls and straight lines.

Trying to unify his own contradictions with the contradictions of a group of "authorities" selected by him because they would seem, without too close inspection, to support his own opinions, Professor Osborn publishes the ancestral tree of the anthropoid apes and man ("Men of the Old Stone Age," p. 54). He begins with the "unknown ancestral stock" of the old world primates, including man, leading on one branch to the small monkeys of Egypt and the Macaques of Asia and Europe. Another branch of this "unknown ancestral stock" became the Propliopithecus, one of whose children became the orang of Asia, another the gorilla of Africa, a third the chimpanzee of Africa, a fourth the gibbon of Asia and a fifth, leading to the "Unknown Pliocene ancestors of man," from whom "in the order of descent" are placed the Trinil Ape-Man, the Heidelberg man, the Piltdown man, the Neanderthal man, more primitive species, human and prehuman, the Cro-Magnon and other races and finally, on top of the tree, Homo sapiens, meaning you and the rest of us.

The materialistic scientists would tell us they have no fault to find with the critics of Ernst Haeckel, who object to his scientific forgeries and falsifications. That is old stuff, they say. Yet this thing, published

in the name of science as an ancestral tree of the anthropoid apes and man, is a 1921 contribution to man's "knowledge" concerning himself. If it is not the same old stuff, newly dressed, what is it?

The student who does not examine with a microscope, looking at that tree, would quickly conclude that the Trinil Ape-Man came out of a pure ape; that the Heidelberg man, still very much an ape, came out of the Trinil Ape-Man; that the Piltdown man, still very gorilla-like, came out of the Heidelberg man; that the Neanderthal man, with many apish characteristics still clinging to his squat ferocity, came out of the Piltdown man; that other pre-human and human primitives came out of the Neanderthal man; that the Cro-Magnon and more highly developed races came out of these primitive sub-men and that in turn, out of the Cro-Magnon cave man, who was an improvement on all the others, came modern man.

At the End of a Sawed-Off Branch

Another theoretic tree ("Men of the Old Stone Age," p. 491) offers a sort of antidote to these impressions by putting the Trinil Ape-Man on a special branch and ending him there as an extinct species of pre-human creatures. The Heidelberg man is treated in the same way and ended abruptly by complete extinction just before the races of the old stone age appear. Then comes another special branch labelled "Neanderthal," occupying the entire Lower Palæolithic Period and ending exactly on the dividing line between the Lower and Upper Palæolithic. On a fourth separate branch leading nowhere, except to extinction, is the Piltdown man who dies off forever in the exact middle of the Lower Palæolithic. The Grimaldi race is omitted altogether from this theoretic tree.

Modern man is represented by four branches originating in the Upper Palæolithic.

Certain it is, according to the evidence, that in Palaeolithic times there were in Europe other races, not Neanderthals, not blacks. Why, then, is so much attention focussed on the Neanderthals? The answer, of its very nature, is harsh and biting. The Cro-Magnon or "Engis" type might have belonged to a philosopher. Huxley himself ("Man's Place in Nature," p. 156) makes this admission. John Lubbock, after describing the original Neanderthal skull, says ("Prehistoric Times," sixth edition, New York, 1910, p. 317): "Even, however, in Palæolithic times Europe appears to have been already occupied by more than one race of man." Any serious student must be struck by the suppression of the fine, high, steep skulls which Huxley says "might have belonged to a philosopher" in order that only such skulls as are inferior in form may occupy the picture. The fine skulls could not by any act of violence be made to support a missing-link theory. The acrobats of evolution must avoid them.

But the fine skulls, the philosophers' skulls, the skulls that might have belonged to any modern European, must have some kind of attention. The dramatists of evolution are ready. Instead of admitting that the races were contemporaneous, occupying Europe at the same time, they summon the Cro-Magnons (a little later) to kill off the Neanderthals. *But what were the Cro-Magnons doing when they were getting ready to do the killing? They must have been in existence. They couldn't have just come up around the corner from nowhere.* The absurdity of the thing is of such a nature as to make one gasp when the word "science" is used in describing it, unless used in the serio-comic sense.

You are asked always to visualize the Neanderthals

as squatty, ferocious, brutish, heavy-jowled, low-browed, long-armed, short-limbed, gorilla-like creatures with small brains. If you fail to get such a picture you have no base from which to move upward. The small brain is an essential. The cranial capacity must be kept as near to that of the ape as possible in order to show an evolutionary progression.

Hence the emphasis given to the Neanderthal skulls that will support such emphasis. Hence the evasion of the Neanderthal skulls that will not support it. The simple facts are that the Neanderthal skulls manifest the same variation in height and capacity as the skulls of living races, and we are guilty of deceit when we sort out only that particular type that will serve a special purpose and bolster a special theory.

Listen to Professor G. F. Scott Elliot. He says ("Prehistoric Man," 1915, p. 143): "There is some variation in the height and capacity of the Neanderthal skulls. In some of them the capacity rose to 1500 c.c., or even 1600 c.c. In others it is not more than 1080 c.c. (Gibraltar female). This difference is not greater than the range between extreme cases of modern peoples." To deal only with the low end of the range between extreme cases would be sufficient to justify the conclusion that the skull of any carefully selected idiot from the detention pen at the Ellis Island immigrant station *is proof that all Europe is inhabited by idiots.*

But the Neanderthals were not idiots. Listen to Professor Arthur Keith. He says ("The Human Body," 1910, p. 248): "The Neanderthal man had a very large, and as we know from his flint instruments, a capable brain." Also he says (p. 172): "The length of the Neanderthal skulls is much above the modern average."

Obviously neither authority has specialized on the

low end of the range between extremes. On the contrary, like so many of the other authorities heretofore quoted, both have analyzed all the Neanderthal skulls. Facts like these provoke nothing but contempt for the effort to submerge the truth under a surface of carefully fabricated falsehood.

There must be an ancestral tree, of course, and the Neanderthals must grow down very low and very close to the ape trunk, in pleistocene soil, but again the facts have to be faced. Real men were here even before the Neanderthals. The same Professor Arthur Keith, who clings none the less desperately to the ape-man theory, says ("The Human Body," 1910, p. 249): "In the pleistocene we know of the remains of the Neanderthals but there is evidence to show that man was evolved before this period dawned."

Each one may grow his own ancestral tree. Each one may become his own clay modeller. Each one, depending entirely upon his skill in art, may make his own reconstructions, but he must forever ignore two contemporary races, particularly if one of them is superior. He must ever focus on the inferior as if it alone had existence. Otherwise his series of "progressive" stages breaks down and his connecting links are lost. He must be discreet, even crafty. Above all he must avoid candor and truth and abandon reason.

Everything must begin with what is described as the "unknown," as far as palæontology is concerned. Everything may end according to the formula of H. G. Wells, who in his "Outline of History," takes what is unknown, labels it "known," and then tells the world what it knows as a result of this advanced scientific process, "stripped of all superstition, mysticism, theology and other nonsense" (sic)!

H. G. Wells is one of the fruits of a state of mind to which this sort of science must inevitably lead. For

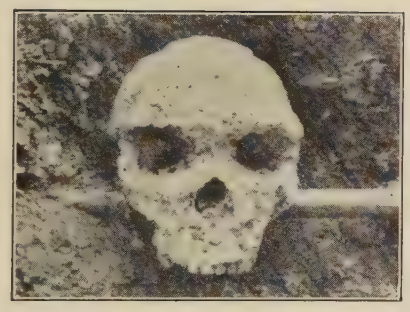
want of a better phrase, even though it involves a paradox, we must describe it as "the blind staggers of science." That it has appropriated so much self-certified dignity and has fooled so many "educated" men will ever remain one of the mysteries of this ouija-board age.

The reader who has travelled this far through a jumble so inextricably confused that science itself is unable to unravel the tangle, so complicated and involved have become the corrupted opinions to which these abuses have led, knows all that H. G. Wells ever knew or could know concerning these palæontological specimens. Yet a consideration of the conclusions of Wells, presented with white hot heat in the name of stone cold science, shows that "science," through the betrayal of its own high priests, has become the plaything of romancers, spiritists, novelists and mountebanks.

A late instance of this corruption of science took the form of a full page in the New York Sunday *American,* August 21, 1921, "explaining why baby can't possibly look like papa or mamma. It is still too close to its monkey cousins." According to the "scientific prospects" we shall soon enjoy "well-trained, gentle-mannered, orderly household servants, monkey servants." They will even work in the fields and on the farm "picking cotton and doing other agricultural labor. All monkeys, from the chimpanzee down, are properly to be regarded as PEOPLE. They are our cousins." Adult apes are quite human and human infants are very much simian. "Therefore when mother speaks of baby as a 'little monkey' let us realize that the term is more descriptively accurate than she knows."

The Rhodesia Man

At the November meeting of the Zoological Society, London, 1921, with Professor McBride, F. R. S., a vice-



The ''drawing'' of the Rhodesian Cave Man's skull (at the right) suggests a creature without a forehead. It was published in the London Chronicle, November, 1921, under the following caption: ''Cave Man's Skull at British Museum. Believed to be 100,000 Years Old.—Ape-like Human.''

You will note that the ''drawing'' is well done and that it is designed to emphasize an ape-like cranium with a very low crown. Contrast it carefully with the actual photograph (at the left) supplied by ''International.'' This photograph was taken at the Broken Hill Mine in Northern Rhodesia, on the exact spot where it was discovered by W. E. Barren, a New Zealand engineer, in what is now called the Bone Cave, some 140 feet below the original top of the hill. This cave, which ran for a long distance under the hill, was full of animal bones but no human remains had been found until the Rhodesian Man was unearthed.

The photograph shows the skull in position supported by a stick in the soil before it was removed and brought to England by the managing director of the Broken Hill Mine, Mr. R. Macartney. Had the ape-man drawing told half as much as the actual human photograph, the readers of the newspapers would have discovered for themselves a very considerable crown, a very considerable forehead and altogether a very human, and not at all ape-like skull.

president of the Society, in the chair, the recently discovered and already famous Rhodesian cave man's skull, christened Homo Rhodesiensis by Dr. Arthur Smith Woodward, F. R. S. (Keeper of Geology at the National History Museum), was discussed as one of the paradoxes of the ape-man theory. The London *Times* and London *Chronicle* announced that experts had given this "ape-like human" an age of 100,000 years. Neither paper named the experts. The British public was merely informed that it may now be certain of its monkey origin.

"It is the largest human mouth ever seen," said Dr. Woodward, "and the fact that there are several decayed teeth knocks the bottom out of the theory that such disease is a product of civilization. We have the shin and thigh bones and from these it is perfectly clear that this type of man walked erect, a deduction which is confirmed by the articulation of the back-bone. My idea is that Homo Rhodesiensis existed at a later date than Pithecanthropus (the ape-man discovered in Java), or even the Neanderthal Man, although the large and heavy face is more simian in appearance than the latter. Until we have a cast of the brain cavity and can deduce what kind of brain he had, it is difficult to place the type. We cannot, of course, go by the size for the Neanderthal Man had a larger brain cavity than some of us at the present day. It is quality, not quantity, which counts.

"Homo Rhodesiensis is decidedly a new link in the chain of evolution and he may prove to be the next grade after the Neanderthal Man in the ascending series."

Holding "the mysterious orange-colored skull" in his hand, Dr. Woodward emphasized the "incongruous combination of the brain case and face." He suggested that the arrangement gave the skull the appearance of

an ape when one looked at it from the front, but admitted that "the brain case, however, indicates a brain of about the average size of the human brain, while the case itself is only of about normal thickness." There was no ape-like massiveness of bone formation, nor any thing suggesting it.

"The bony ridges of the brows," continued Dr. Woodward, "are very big compared with anything we have seen in early man before and their extension to the side is very marked, though the width is not as great as in the case of the gorilla. The Pithecanthropus from Java cannot, I think, be regarded as very close to the Rhodesian skull, which is much nearer to the Neanderthal skull."

Here again, with no reference to the true history of Pithecanthropus, this creature is resurrected and exhibited not as a supposition and an inference, but as an established fact. All references made to him by the scientists in the London newspapers were made as if the Java creature was a thing of reality instead of an hypothesis, the supporting fragments of which are hidden even from the most eminent of scientists, as well as from the gaze of the plain people.

Dr. Woodward, despite the simian insinuations of his remarks, admitted while referring to the "immense size of the palate" of the Rhodesian skull, that "nevertheless it is entirely human and beautifully domed—comparable with what we find in modern men, even singers. The symmetry is beautiful and the nature of the bones perfect. There is nothing to suggest abnormality. This impression is confirmed by a piece of upper jaw of a second individual found with the skull, with teeth and palate exactly like the first. There was no trace, however, of disease.

"As to the relation of this race (sic) to fossil men (sic) already known (sic) it is impossible," said Dr.

Woodward, "to say anything definite. But as far as I can judge at present, the Rhodesian skull is that of a later man than the Neanderthal Man." How then could it have been 100,000 years old?

Professor Elliot Smith admitted that "the specimens under consideration present some very remarkable paradoxes. The limb bones of the Rhodesian Man are apparently very much straighter and longer than the limb bones of the Neanderthal Man and altogether much more like the modern man.

"Judged by the limbs alone, we would assume that we are dealing with a much more recent type than the Neanderthal Man, but judging by the face we would imagine we are dealing with a much older type. As to the sex of the Rhodesian skull there is the suggestion that it belonged to a woman in the prime of life. The sutures suggest that she was probably less than thirty years of age. When the face was clothed with flesh I think it might have had widely-splayed nostrils like the gorilla and in this respect it might have been less like a modern human being than might appear from the skull."

Perhaps it looked very much like a gorilla indeed. Obviously that is what such comments would have the people think it looked like. Obviously there will be a tempest in the scientific tea-pot over this calumniated packet of bones from the Rhodesia Broken Hill Mine now languishing in the British Natural History Museum.

Rhodesia, named after Cecil Rhodes, is a British possession in South Central Africa, lying within the tropics. Among its animals are the elephant, hippopotamus, rhinoceros, giraffe, zebra, and various baboons and apes. It also boasts of the lion, leopard, cheetah, wolf, jackal, python, puff-adder, cobra, crocodile, ostrich, etc.

The natives of Rhodesia belong to the Bantu-Negro stock. It was once the fashion to refer to the "Ruined Cities" of Rhodesia which popular writers ascribed to a remote antiquity, identifying their founders with the subjects of King Solomon and the Queen of Sheba. Even the Encyclopedia Britannica, eleventh edition, admits that "positive archæological evidence demonstrates that the 'Great Zimbabwe' itself, the most famous and the most imposing of the misnamed 'Ruined Cities,' was not built before medieval times, and that the earliest date which can be assigned to any of the sites explored is subsequent to the eleventh century, A.D."

All the evidence indicates that this entire section of the world was once inhabited by black men, not white, and it may be reasonably inferred therefore that the skull of the Rhodesian Cave Man is the skull of a black.

The *Mid-Week Pictorial,* published by the New York *Times,* December 15, 1921, devotes an entire page to this new anthropological "Find." "Especially interesting," says the article, "is the probability that the man of the Broken Hill skull stood erect. This is inferred from the fact that with the Rhodesian skull were found a complete shin-bone and two ends of a thigh bone which are exactly like those of modern man, and indicated that the possessor stood erect."

One is tempted to add, "Especially interesting is the probability that Julius Caesar stood erect. This is inferred from the fact that he was walking with Mark Antony when the sooth-sayer cried out, 'Beware the Ides of March!' He could not have walked without legs. Without shin-bone and thigh-bone he could have had no legs. As the historicity of his ability to walk seems to have been satisfactorily established, there is some probability that when he walked at all he walked

Courtesy Zoological Society.
Photograph by Edwin R. Sanborn.

Natural walking posture of Gorilla. Haeckel placed the creature in an upright unnatural position to make it "resemble" man. Note the thumb on the rear hand. Note also that the creature walks on the knuckles, or rather on the cullosities of the knuckles of the forehand. Compare with bear standing erect. Draw such inferences as you will from the absurd contrast. Formulate a theory of your own. It will be as good as any of the already abandoned ones.

erect. The absurdity of these anthropological observations is so obvious and so transparent that one sees through them a state of mind which seemingly desires to believe that there really were half-human half-simian animals who walked on all fours before walking erect; hence the weird exclamation, "Especially interesting is the probability that the man of the Broken Hill skull stood erect."

Does anybody doubt that he did?

Whorls and Straight Lines

Rare is the student who makes an intensive study of the theory of evolution, yet in the United States alone fifty thousand "educated" men and women, including the intelligencia, teachers, editors and other professionals who assist in the formation of public opinion, have read "Outlines of History" by H. G. Wells, many of them appropriating its "scientific" sophistries and passing them on as further "confirmation" of the "unassailable status of Darwinism."

As if Darwinism were a science and not a theory, and as if the Haeckel deformity of Darwinism were an historical fact instead of a malignant mutilation of truth, Wells reserves on his train of perversions a drawing room for the monkey from which he says he descended. He failed, however, to consult with Raymond L. Ditmars, curator of mammals and reptiles of the Zoological Gardens, Bronx Park, New York City. Ditmars is a firm believer in the theory that "our apish grandsires chattered love amid the cocoanut branches of the unexplored jungles long before Adam ever lost his spare-rib or Paris rolled the little red apple." In an article under a four-column caption illustrated with half-tone photographs of chimpanzees published August 28, 1921, in the New York *Evening Telegram,* Sun-

day, Ditmars declares: "When the evasive missing link is eventually found he will be discovered tightly grasping the paw of his mate and chattering such monkey gibberish in her ears as 'Don't be afraid. We're their ancestors, you know.'" The article goes on to announce that he is making a moving picture, 20,000 feet of reel, to convince the rankest unbeliever that the anthropoid apes are our real ancestors and that these pictures are being made while an expedition, headed by Roy Andrews, is pushing into Thibet with seventy-five camels, four motor trucks and four Handley-Page airplanes in search of the missing link, which Dr. Andrews expects to find in the form of anthropoid apes a thousand years advanced in evolution over the type of ape we see in captivity. "This," according to Ditmars, "is the highbrow ape; it stands erect, supposedly, and displays all the characteristics of man. He will be brought back to New York with sufficient of his brothers and sisters to permit a searching investigation as to his relation to humans."

We must wait for that "searching" investigation. We must wait patiently for that missing link as Sir Charles Lyell was afraid we would be compelled to when more than sixty years ago ("Antiquity of Man," p. 499) he wrote: "At present we must be content to wait patiently, and not to allow our judgment to be influenced by the want of evidence. . . . As we meet with extinct kangaroos and wombats in Australia, extinct llamas and sloths in South America, so in equatorial Africa, and in certain islands of the East Indian Archipelago, may we hope to meet hereafter with lost types of the anthropoid Primates, allied to the gorilla, chimpanzee and orang-outang."

Perhaps, even after the return of the Andrews expedition, we shall have to continue our waiting. But in the meantime let us not forget that early in 1921 the

same Ditmars, at the request of Professor William K. Gregory, curator of the American Museum of Natural History, acting for the Galton Society of Washington, D. C., collected the finger-prints of monkeys for comparison with the finger-prints of men. The results have added to the bewilderment, embarrassment and confusion of the monkey evolutionists. The prints show that the human hand is marked on the tips of the fingers and on the tips of the thumbs, as every one knows, with lines arranged in whorls. The arrangement with respect to the monkey hand, as everyone does not know, is just the reverse.

Monkey finger-tips are marked in parallel lines and the monkey whorls, literally gorgeous in design, when compared with the very much simpler and less conspicuous human whorls, are found not on the tips of the fingers where the ape-man evolutionist would have been delighted to find them, but rather on the palms of the hand where, as far as the evolutionist is concerned, they have no business at all.

This upside-down arrangement has caused something of a panic in the Hall of the Age of Man for, disquieting as it is at first sight to the monkey evolutionist, it becomes more disquieting as its many implications are disclosed. On the human hand the soft fleshy mounts at the base of the fingers are marked with parallel lines. The exact opposite of this is characteristic of the corresponding part of the monkey hand, upon which in dome-like formation are to be found elaborate sunbursts of whorls. Ditmars has informed the writer that the finger-prints have convinced Professor Osborn that he has been correct from the beginning in his belief that man has not descended from any of the living apes, a fact which makes it all the more necessary that the Andrews expedition shall discover some new kind of monkey hitherto unknown.

With the divulgence of these seemingly trivial but none the less extraordinary differences we are reminded that criminologists establish identity on the basis of the whorls on the tips of the human fingers, using especially the whorls on the tip of the thumb. It is well for Edgar Allan Poe that he attempted to solve no murder mystery through the thumb-print of a great ape. The story would have been spoiled by the discovery of the fact that for purposes of identification monkey finger-prints are useless.

Should a crime wave break out among monkeys the monkey police would have to make prints of the mounts, not of the tips. It must not be assumed that monkeys are any less jealous of the distinctiveness of their identity than man, for it now appears, as is the case with man, that there are no two monkeys with the same whorl markings.

The curious shifting of the whorls through evolutionary processes from mount to tip and from tip to mount should have been followed by other shifts than those now noted for the first time in the matter of parallel lines and whorls. In evolutionary harmony with these radical shifts why should the monkey's eyes not be found in the back of his head? Why should his tail not protrude like a beard from his chin? Why should his feet not be where his hands are, and vice versa, though not in the fashion of Mr. Barnum's mule, whose tail was where his head should have been—in the feed-bag?

Why the monkey's stomach should have remained at anchor while his whorls were searching about for a change of scene Mr. Wells and the professors who have inspired him will have to make clear. Mr. Barnum didn't, and Mr. Ditmars, who waits with eager expectation, is perplexed beyond expression; all of which brings us to the difference between futile enthusiasm

on the one hand and changeless truth on the other.

The difference between the average layman to whom Wells and his brilliancy appeal and the scientist who deals not with fancy, but with fact, is the difference between futile enthusiasm and changeless truth. The layman talks about evolution as if it were an established historical fact; the scientist confesses that to science, unaided by philosophy, the origin of life is unknown, and that the origin of the main organic types and their principal divisions are to science similarly unknown.

The layman accepts without challenge the shallow plausibilities tendered him by popular writers. Thus he clutters his mind with the doctrine of an ascending evolution of organic forms, whereas the scientist admits there is no evidence in favor of any such ascending evolution.

The layman of materialistic tendency adopts the ready-made conviction that man originated in the monkey, whereas the scientist knows and admits there is no trace of even a merely probable argument in favor of the monkey-origin of man. He knows that the earliest human fossils and the most ancient traces of culture refer to a true Homo sapiens as we know him today, with the whorls on his fingertips and the straight lines on his mounts.

The scientist also knows, and this is most important to the student of evolution, that changes extending beyond the range of normal variation observed in the human species have not been demonstrated either experimentally or historically.

The layman talks about Darwin's theory of natural selection as something positive; the scientist describes it as a negative factor only, and actually dismisses it altogether.

CHAPTER VII

"Theologians" versus "Scientists"

"Theologians" versus "scientists"—Pasteur and God—Haeckel, Darwin and the critics.

That the attitude of the average layman toward the whole subject of evolution is the end-product of the influences operating upon him as the result of scientific frauds is easily demonstrated. In January, February, May and June, 1921, the New York *Globe* published numerous papers by the writer dealing with evolutionary facts and fancies as developed by the foremost scientists of Europe and America. Scores of laymen wrote the editor protesting vehemently against the writer's exposure of a subject which they looked upon as sacrosanct. There was a curious unanimity of criticism to the effect that all the opponents of the theory of the monkey-origin of man have been theologians, not scientists.

They were unfamiliar with the fact that practically all of the scientists quoted here, with possibly three exceptions, have never been conspicuously identified with any religious sect and are, for the most part, as far as theology is concerned, agnostics or indifferentists.

Oddly enough, though they were unfamiliar with the truth, Professor Henry Fairfield Osborn has dedicated his "Men of the Old Stone Age" to Abbé Henri Breuil. They had not heard of the law of Mendel, growing out of the experiments conducted on more than ten thou-

sand plants by Gregor Mendel, a theologian, an Augustinian monk, whose work has been carried on not by theologians but by scientists such as de Vries, Correns, Morgan, Tschermak, Bateson, etc., who refer to it as "Mendelism, the science of genetics."

They did not know that among Europe's foremost biologists, and certainly Europe's foremost authority on insects is Father Erich Wasmann, whose works on science, not on theology, are in all the scientific libraries of the world.

They declared with emphasis that "the specialists in biology are all agreed among themselves upon the subject" and pointed to the fact that "Mr. Wells scoffs at the Mosaic story of creation," although it cannot be too strongly stressed that the biological idea of species has nothing whatever in common with the scriptural narrative of the origin of life. The Mosaic account of creation signifies nothing more than that all organisms owe their existence to the Creator of the world. Its astonishing accordance, in chronological sequence, with modern science will be emphasized further on.

They had not heard of the scientific work of B. S. Shattock, L. S. Dudgeon and Sir James Dewar, not theologians but scientists, whose extraordinary demonstrations have smashed the preposterous theory of interplanetary migration as the starting point of biology, just as Louis Pasteur, the foremost scientist of modern times, smashed the equally preposterous theory of spontaneous generation.

They were unmindful of the fact that the Mosaic narrative does not speak of the HOW, though it is the fashion among certain "educated" men to assail the scriptures as if Moses were in conflict with natural science, an oddity of belief that here, in its proper place, will be disclosed as doubly odd.

One indignant protest referred triumphantly to the declaration made by Mr. Henry Ford, of automobile fame, to Mr. Wilbur Forrest of the New York *Tribune,* when the manufacturer of the useful little jitney that bears his name said: "It's a simple matter to take the grains the cow eats and make them into milk superior to the natural article. The cow is the crudest machine in the world."

Pasteur and God

The writer once heard a veterinarian of the United States Bureau of Animal Industry make a somewhat similar statement on the killing-bed of one of Swift and Company's slaughter-houses at Kearny, New Jersey. "I could make a better cow than God ever made," he insisted. Perhaps he was right, but like the scientists whose inventions have been exposed here, the only proof he could offer in support of his assertion was the assertion itself.

Henry Ford doubtless has his own views of life and they doubtless mean much to the proponents of evolution when he says: "Our laboratories have already demonstrated that cow's milk can be done away with and the elements of milk can be manufactured as a scientific food by machines far cleaner than cows."

The writer has seen "scientific" milk made of the soja bean. The writer has also seen artificial honey made on a "scientific" formula. The former kills babies: the latter kills bees. Henry Ford, the biologist, or Henry Ford, the bio-chemist, or Henry Ford, the metabolist, perhaps has not yet learned that science misses the essence of life's formula which the scriptures nowhere attempt to reveal and that this essence has ever eluded the scientist who dabbles with synthetics.

A synthetic cow may be quite as possible as a purple cow.

"I never saw a purple cow,
I never hope to see one,
But I will tell you anyhow
I'd rather see than be one."

But—synthetic wintergreen when prescribed by the physician does not conduct itself, for some mysterious reason, in the human body, as does natural wintergreen, although the chemical symbols of both, as far as science is concerned, are identical.

Science can assemble every element known to exist in the grain of wheat—proteins, nucleo-proteins, lecithins, phosphotides, carbo-hydrates, fats, colloids the sulphur, phosphorus, iodine, chlorine and fluorine salts of iron, potassium, calcium, magnesium, manganese, sodium, silicon, including the extraordinary substances known as vitamines, but science can't make the combination sprout in the ground.

The influence of evolution on nutrition, by reason of its synthetic-chemic standards, rejecting plan, purpose and providence, has already been disastrous in its effects upon civilization. See "Science of Eating," 1920, by the writer.

To men who have not brooded over such facts, which have nothing of theory or opinion in them, Pasteur is indeed a stumbling block, for although regarded by scientists themselves as the crowning glory of scientific achievement, he held views scorned by the anti-theologian who takes refuge in science at every mention of the Creator.

"These are the living springs of great thoughts and great actions," said Pasteur. "Everything grows clear in the reflection from the Infinite. The more I know the more nearly is my faith that of the Breton

peasant. If I could know all I would have the faith of a Breton peasant woman. Happy the man who bears with him a divinity, an ideal of beauty and obeys it; an ideal of art, an ideal of science, an ideal of country, an ideal of the virtues of the gospel."

Haeckel, Darwin and the Critics

Many of the critics of the writer's papers as published in the New York *Globe* justified their objections by appealing to "Darwinism," and by reminding the editor who had offended the public by giving space to the writer's "expressions of assininity" that Darwin was an avowed atheist.

They did not know that the term "Darwinism" as popularly misrepresented by Haeckel is not the theory of evolution, but rather the theory of natural selection. Darwinism does not mean that man descended from an ape. It means that animals, under certain conditions, accommodate themselves better than others to the circumstances of their life, by reason of which they triumph in the struggle for existence while the others are wiped out, so that the victors eventually transmit their special qualities to their descendants, and by such transmission these qualities become more and more prominent until a new variety, a new race, a new species has been developed.

These critics did not know that under the theory of natural selection the blood-red robber-ant ought not to make the mistake of selecting its worst enemy, the lomechusa, as a guest to live with, because in doing so it follows an instinct that leads to the destruction, not to the perpetuation of its own species. If the blood-red robber-ant selected a guest that would prove harmful from the moment when it deposited its larvæ to be brought up in its own nest for the purpose of wip-

ing out its own offspring, its idea of the theory of natural selection must have been the idea of suicide.

These critics didn't know that such stumbling blocks only served to caution Haeckel when he spoke to scientific men as distinguished from lay audiences. They didn't know that Haeckel hated a Creator and said so, describing Him as "a gaseous vertebrate." They didn't know that for forty years Haeckel consciously and deliberately confused Darwinism with the theory of man's ape-origin.

They didn't know that in his address on "Monism as a Bond of Union between Religion and Science" Haeckel explained that his reason for this was because Darwin's theory of natural selection supplied him with the only possible means of explaining orderly action in nature without including a designing or ordering Creator.

They didn't know that Haeckel later refused to discuss the theory of natural selection for the reason that he knew if he did not limit Darwinism to that theory he would have to let the name go altogether.

They didn't know that Haeckel had already done the damage by starting the name Darwinism on its crooked course, so that the word is still commonly used as signifying the theory of the evolution of man from an ape, and that men's ideas, including the ideas of Wells, continue to be confused by it.

They didn't know that Darwin was not only not an atheist, but that he was not a Creator-hater, even though his definition of conscience carried him very close to agnosticism. Haeckel did know this.

At the very end of Darwin's "The Origin of Species," sixth and last English edition, 1888, volume 2, p. 305, and repeated unchanged in the American 1920 edition, he said: "There is grandeur in this view of life, with its several powers, having been originally

breathed by the Creator into a few forms or into one." Darwin expressly stated that there was no evidence to compel the intellect to admit the evolutionary change of even one single species into another. In "The Life and Letters of Charles Darwin," edited by his son, Francis Darwin, volume 1, p. 210, is the famous letter written to Bentham, which most people never read but in which Darwin emphatically declares: "When we descend to details WE CAN PROVE THAT NOT ONE SPECIES HAS CHANGED."

On the following page he says: "I, for one, can conscientiously declare that I never feel surprised at any one sticking to the belief in immutability."

On page 274 he says: "In my most extreme fluctuations I have never been an atheist in the sense of denying the existence of God." If any more evidence is needed to whom shall we go for it? Darwin himself has spoken.

Haeckel was a specialist in fraud and forgeries, and though ignominiously exposed by the forced confession of his own laboratory assistant, Dr. Schmidt-Jena, and by many others, Milnes Marshall, John Gerard, Erich Wasmann, Anton His, Keibel, Rutimeyer, Brass, etc., his influence still dominates popular writers on evolution, who seemingly have never read the rebuke administered to him by Darwin himself, when the latter wrote: "Your boldness makes me tremble." See letters edited by his son, Francis.

CHAPTER VIII

Hybrids, Haeckel and Confusion

Hybrids abhorred by nature—Haeckel's biogenetic principle—Confounding of Species—From egg to adult—Fish gills and human ear—"Absolutely and radically false."

Even before Darwinism was abandoned by the modern scientist it was strictly scientific to believe that cats are always cats, whatever the variety, and that though they differ in many and wonderful characteristics within the limit of cat variation, they nevertheless remain in all their variations just what they are—cats. They never mate with dogs, and there are no half-dog half-cat animals even in the dime museums.

Whatever the variety, dogs always remain dogs, horses always remain horses, jackasses always remain jackasses, and mules, like every other hybrid repugnant to nature, are cut off without offspring. The evidences of the senses suggest a purpose and a plan to prevent the confounding of species, easily discernible to every eye.

The layman has observed that the bluefish does not fertilize the eggs of the salmon; that there is no hybrid between the butterfish and the porgy; that the fluke and the flounder, although almost identical, do not fertilize each other's spawn; that there is no offspring between the striped bass and the sea bass, between the mackerel and the dogfish.

No fisherman ever caught two mackerel marked with the same mottled stripes, yet all mackerel are mack-

erel. They are never half mackerel, half dogfish. Penetrability of the ovum by the sperm, timing and a score of other factors are bound up in this phenomenon of the integrity of the species.

All laymen know that whereas there are no two blades of grass alike, all grass is grass within the strictly defined limits of variation and that regardless of the variety, although no two oak leaves are alike, oak leaves are always oak leaves and cannot be confounded with maple leaves. There are many varieties of wheat but wheat is never rye.

Artificial hybrids can be forced under many circumstances for a single generation, but they do not perpetuate themselves because nature, though loving evolutionary processes according to the evolutionist, will have none of such confounding of her main types.

Proprietors of circuses have tried, for commercial reasons, to produce freaks but they cannot get a mixture of the camel and giraffe, of the hyena and the panther, of the lion and the tiger. Even the chimpanzee does not mate with the gorilla. Members of the same family can and do mate regardless of the wide variations of race. The white man can mate with the African negress, the American Indian can mate with white woman, negress, Chinese or Jap for the reason that they are members of the same family, Homo sapiens. Horrible as is the contemplation of the thought it is none the less true that the human, however pervert, does not and cannot mate with the simian, for which reason there is no offspring and can be no offspring between man and any of the apes.

The uncritical look upon the natural and beautiful developments of different families within the limits of variation and are taught to interpret what they see as evidences for evolution. It is this confusion that sets them off along a path strewn with theory and invention

so plausibly constructed as to take advantage of the seemingly obvious so that the stretch from hypothesis to alleged fact is presented without violence.

Few, indeed, are the victims of the materialistic philosophy of evolution who are now capable of recognizing the fact that monkeys are always monkeys and men are always men in the true Darwinian sense, preferring, as they do, to believe that one species can and does evolve into other species instead of into many wonderful and beautiful varieties of the same species. Variation and evolution are not now and never were synonymous.

Haeckel's Biogenetic Principle

Many of the critics of the writer's papers, particularly those of the medical profession, sought to influence the editor of the New York *Globe* to discontinue the series by admitting that even though the palæontological evidence for evolution had broken down, there were still the biogenetic principles to consider.

Here, again, they were being influenced by Haeckel, who developed the biogenetic principle by which he sought to show that man before his birth passes through twenty-two stages of development, later brought up to thirty stages, corresponding with the same number of stages of his ancestors, including the whole outfit, jellyfish, tadpole, etc., terminating in the monkey and through the monkey by way of Homo stupidus, into man.

Because unborn man in the fœtus at an early stage resembles a tadpole, for instance, it would be proof, according to Haeckel, that man's ancestors passed through the tadpole stage millions of years ago.

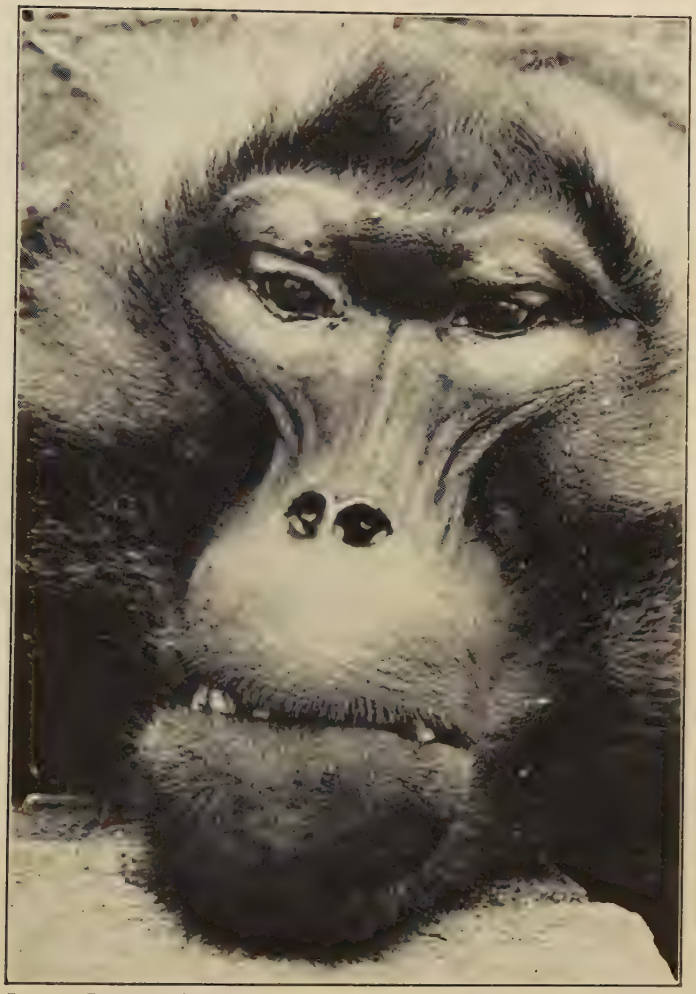
Of course if the biogenetic principle thus set forth is true in the sense that the growth of the individual

represents a faithful reproduction of the evolution of the race, it follows that apes are descended from men, not men from apes, because among the higher apes the baby ape resembles man in the formation of the cranium and in the shape of the face far more closely than the adult ape. This scientific fact, which is not a theory, would lead to the conclusion that in their youth the higher apes give proof, by passing through a stage of marked resemblance to man, that the whole ape family descended from man instead of the other way round.

At this point we discover the ape-man evolutionist in the very act of skulking away from his own humiliation. All evolutionists are agreed that the non-resemblance of any known ape to man forbids even a remote possibility that man could have descended from such creatures. All evolutionists are agreed that man could NOT have descended from any known ape. They are forced to a finality of complete and absolute submission and surrender on this difficulty which they themselves have erected in their own path. Hence, to cover their embarrassment when confronting the cold facts of the case, they are driven to the desperate extremity of finding an ape whose peculiar physical characteristics would solve the difficulty. It is for this reason that they invent an *"unknown ape of which no living form exists and of which no fossil remains have ever been discovered."*

Confounding of Species

Darwin himself was greatly puzzled by the obviously jealous operations of an inviolable law, the unique exceptions to which, because of their unsatisfactory and complicated nature, only serve to confirm the un-



Courtesy Zoological Society.
Photograph by Edwin R. Sanborn.

Head of Galada Baboon, said to be lower in the chain of evolution than the gorilla. Note "superiority" of chin.

yielding rigidity of that law, in its effort to prevent the confounding of species.

Speaking of the origin and causes of the sterility of first crosses and of hybrids ("The Origin of Species," Appleton, 1920, vol. 2, p. 21), he voices a hint of his bewilderment in the following words: "It is almost as much opposed to the theory of natural selection as to that of special creation (sic), that in reciprocal crosses the male element of one form should have been rendered utterly impotent on a second form, whilst at the same time the male element of this second form is enabled freely to fertilize the first form; for this peculiar state of the reproductive system could hardly have been advantageous to either species." Almost as much opposed? Opposed unanswerably! In fact there goes the whole theory of natural selection which has nothing to do with special creation despite Darwin's effort to combine the two terms in one phrase. Laboratory experiments are not acts of special creation nor are they manifestations of natural selection.

Freely confessing that the subject is "extraordinarily complex," he refers to the observations communicated to him by Mr. Hewitt, who had great experience in hybridizing pheasants and fowl, declaring that the early death of the embryo is a very frequent cause of sterility in first crosses. He also refers to the examination of about 500 eggs produced from various crosses between three species of Gallus and their hybrids. A majority of these eggs had been fertilized, yet the embryos had either been partially developed and then had perished, or had become nearly mature, but the young chicks were unable to break through the shell. Darwin says ("The Origin of Species," Appleton, 1920, vol. 2, p. 24): "Of the chickens which were born more than four-fifths died within the first few days or, at latest, weeks, without any obvious cause, apparently

from mere inability to live, so that from the 500 eggs only twelve chickens were reared. With plants, hybridized embryos probably often perish in a like manner; at least it is known that hybrids raised from very distinct species are sometimes weak and dwarfed, and perish at an early age."

In contemplation of these phenomena Darwin never ceased to wonder. He could find no explanation why an organism, when placed under unnatural conditions, is rendered sterile. All that he could attempt to show is, that in two cases, in some respects allied, sterility is the common result,—in the one case from the conditions of life having been disturbed, in the other case from the organization having been disturbed BY TWO ORGANIZATIONS BEING COMPOUNDED INTO ONE.

"A similar parallelism holds good with an allied yet very different class of facts." ("Origin of Species," Appleton, 1920, vol. 2, pp. 27-28.) "It is an old and almost universal belief, founded on a considerable body of evidence, which I have elsewhere given, that slight changes in the conditions of life are BENEFICIAL to all living things. We see this acted on by farmers and gardeners in their frequent exchange of seeds, tubers, etc., from one soil or climate to another, and back again. During the convalescence of animals, great benefit is derived from almost any change in their habits of life. Again, both with plants and animals, there is the clearest evidence that a cross between individuals of the same species, which differ to a certain extent, gives vigor and fertility to the offspring. Hence it seems that slight changes in the conditions of life BENEFIT all organic beings, but a cross between two forms, that have become widely or specifically different, do produce hybrids which are almost always in some degree sterile."

Summing up, Darwin asserts that first crosses between forms sufficiently distinct to be ranked as species, and their hybrids, are very generally but not universally sterile. Darwin, be it remembered, was trying to uphold the theory of natural selection. He had not gone so far as to declare that man's ancestor was one of the great apes. He really did believe that man's descent was from some form of lower ape-like animal, and the student of his "Descent of Man" will recall the illustrations designed to show similarity between the embryo not of man and monkey, but of man and dog! The mandrill, though a monkey, is more like a dog than an ape.

That he was baffled by the difficulties which continue to baffle the scientists of today is revealed by his own summation. "Finally, then, although we are as ignorant of the precise cause of the sterility of first crosses and of hybrids as we are why animals and plants removed from their natural conditions become sterile, yet the facts given do not SEEM TO ME opposed to the belief that species aboriginally existed as varieties."

It was necessary for him to favor the idea of varieties from one aboriginal species rather than the creation of all the species as distinct and separate identities in order to support his own theory of natural selection. That he did favor himself and the product of his own inference merely serves to emphasize the tendency of human nature toward preconceptions and a natural bias which if not directed and controlled by supernatural motives tends to take sides just as frequently against the truth as for it.

From Egg to Adult

Certain it is that every egg is a law unto itself. It is forced on by "something higher than itself" to fol-

low a plan, as we shall see in greater detail a little later in connection with the Mason bee, until it fulfils the destiny outlined for it by that same "something higher than itself."

The living cell with which all animals begin is almost always of infinitesimal size, as a rule not more than the one-hundred-twenty-fifth part of an inch in diameter. Embryology informs us that "all cells more or less agree with one another, since as a rule each possesses a wall, a nucleus and cell contents." The extraordinary thing about them is the extraordinary diversity of their operations and the extraordinary thing about this extraordinary diversity is its extraordinary adherence to the course mapped out for it by that "something higher than itself."

At one time the process of cell division was explained in a mechanical manner, but science itself now shows that cell division is susceptible of no such explanation. In experimental embryology the eggs of various lower forms of life are developed after fertilization under strange and unnatural conditions. Instead of permitting the frog-spawn to develop, for instance, under their natural spherical form, the experimenter flattens them out between two sheets of glass. Notwithstanding this abnormal condition, the frog egg as soon as released from the experimenter's trap insists upon reforming itself and persists in such a course until it has succeeded in restoring its normal and natural shape. "It almost seems," says Wilson, "The Cell in Development and Inheritance," "as if every egg was a law unto itself."

In nature frog's eggs are never subjected to such unnatural conditions. Consequently the experimental frog's egg inherits no instinct by which it is enabled to overcome the sudden and wholly unfamiliar situation which its ancestors had never been called upon to meet.

As we have already seen, certain defenders of the theory of evolution, although prepared to admit that the palæontological evidence is broken down, insist that there are still the zoological, the biological and the morphological proofs to sustain them. Ernst Haeckel and Fritz Müller advanced the theory that man in his individual development reproduced a number of ancestral forms in succession (in the womb before his birth) and that this constituted a conclusive proof of his descent from beasts. Oscar Hertwig, in his "General Biology," and also in his "Comparative and Experimental Evolution of Vertebrates," declares that the evolution of the individual is not a repetition of that of the race, but, *assuming* the principle of evolution, we must regard it as a continuation of the development of the race. As this process continues, the corresponding new generation must advance somewhat further than its immediate predecessor.

The apparent repetition of many previous stages of development is accounted for by the fact that it is essential to the very nature of development to advance from what is simple to what is complex. The more highly any animal is organized, the more stages of development must it pass through, before reaching the complex final stage, and it is quite in accordance with nature that the previous transitional stages, being simpler, should resemble the final stages of other animals, which have remained stationary at a lower degree of organization. This constitutes no proof that the human race has passed through all these stages, but it only shows that the evolution of the individual goes on from the first sub-division of the impregnated egg through various stages, until the final form of the perfect organism is reached.

Fish Gills and Human Ear

It is said there is no possible explanation for certain stages in the development of the individual human being unless they be regarded as repetitions of an earlier race-evolution in conformity with Haeckel's principle. The most important of the so-called "proofs" of this are the so-called branchial arches and clefts of the human embryo. They occur to the number of four in all mammals and to the number of three in all human beings. In fish they develop eventually into real branchial arches and real branchial clefts. In the case of man the first branchial arch becomes the mouth, and the first branchial cleft becomes the external ear. The others undergo involution, or they form other organs, the bones of the internal ear, etc.

Erich Wasmann ("The Problem of Evolution," p. 61), says: "The so-called branchial arches and clefts are merely curves and folds of the pharynx which are quite unimportant in themselves, and eventually develop into something bearing no resemblance to real branchial arches or clefts. They are, in fact, PHARYNGEAL ARCHES AND CLEFTS.

"In the case of fish to whose existence gills are essential a similar arrangement develops into real gills, and so with regard to fish alone it is correct to speak of real branchial arches and clefts as existing in the embryo."

Here, again, we see an uncanny instance of impulsive conclusions derived from wholly dissimilar subjects bearing to each other a superficial and fleeting resemblance and which, therefore, are melted into one vessel and given a common name so that out of the confusion, for the sake of a theory, some additional plausibility may be derived.

Yet learned men fail to observe how preposterous it

is to draw conclusions in the name of science from the false premises thus set up. As late as July 7, 1921, in a signed editorial in the New York *American,* Mr. Arthur Brisbane said: "The interesting question, one that puzzled Darwin to the last, is: 'How did the eye first start?'

"You can explain the fish gill changing to the human ear (sic), the fin to the bird's wing or man's arm (sic). But how did blind creatures of the earliest life develop eyes and the complicated machinery of vision? Evolution, survival of the fittest, struggle for existence, adaptation to environment and all the other formulæ do not explain that any more than they could explain an electric fan or a Kodak. In that the pious may find comfort and ammunition."

"Absolutely and Radically False"

Mr. Brisbane is altogether certain about the fish gill and the human ear. He has not yet heeded the difference between branchial arches and clefts on the one hand and PHARYNGEAL arches and clefts on the other. However, his comfortable though futile certainty, with regard to the truth of a conviction that has no truth in it, is quite sufficient to him, as an ape-man evolutionist, to offset the deadly complications and massive obstacles involved in the evolutionary riddle: "How did the eye first start?" Darwin himself was baffled by that all but miraculous organ. Referring to Virchow's reverential appreciation of its "beautiful crystalline lens" he says ("The Origin of Species," Appleton, 1920, vol. 1, p. 227): "To arrive at a just conclusion regarding the formation of the eye, with all its marvelous characters, it is indispensable that the reason should conquer the imagination; but I have felt the difficulty far too keenly to be surprised at

others hesitating to extend the principle of natural selection to so startling a length." Let the skeptics pause, for here again Darwin voices belief in God. The succeeding paragraph contains the following: " . . . a living optical instrument as superior to one of glass, as the works of the Creator are to those of man."

Of course there can be no explanation of the origin of the eye, about which evolutionists are quite as silent as, in the case of the gills, they are vociferous. They entirely pass over the fact noted by Mivart ("Types of Animal Life," p. 113), that the salamander, an Amphibian, brings forth its young without gills. Previously to birth they have gills relatively large.

When experiments were conducted to bring them forth prematurely by artificial means, the first thing they did when placed in water was to cast off these large embryonic gills, which were speedily replaced by smaller gills which lasted as long as two weeks. Obviously the large gills, characteristic of gestation, were no inheritance from a previous aquatic existence, whose various stages were thus supposed to be duplicated according to the biogenetic principle. They were useless to life in the water after birth but were altogether essential to the conditions of life before birth. The new gills, suitable for the salamander's artificially disturbed condition of existence, were developed "not in a struggle for existence against rivals, for there were no rivals, but directly and spontaneously from the innate nature of the animal."

This conviction was adopted even by the ardent evolutionist, Carl Vogt, who is quoted by M. de Quatrefages ("Les Emules de Darwin," ii., p. 13): "It has been laid down as a fundamental law of biogenesis that the development of the individual and the development of the race must exactly correspond. This law which I long held as well founded is absolutely and radically

false. Attentive study of embryology shows us, in fact, that embryos have their own conditions suitable to themselves, very different from those of adults. The development of the individual of all organic beings, without exception, is the normal result of all the various influences which operate upon such beings."

CHAPTER IX

The Swan Song of Darwinism

Climbing down, not up!—The death of Darwinism—The burial of Darwinism.

The evolutionist asserts that snakes are descended from lizards, and that some of them have rudimentary legs even in the adult stage. Some snakes have no trace of limbs, even in the egg, but they do have vestiges of gills. Evolution, though it does nothing of the kind, is thus compelled to link them up not with the more recent land animals but with the more ancient water creatures. *How else are those gills to be explained?*

Mivart points out ("Tablet," April 21, 1888), that Amphibians, frogs, newts and the like, agree in some respects as to the development of the germ with mammals, differing in the same respects from reptiles and birds. But reptiles and birds are supposed to be more recent evolutionary developments than frogs, newts, etc. Reptiles and birds should, therefore, come between frogs (earlier) and mammals (later) on the genealogical tree. Moreover, the eggs of one group of Amphibians are found to exhibit remarkable resemblances to the eggs of reptiles and birds, from which it would thus appear they have derived these remarkable resemblances, although on other grounds the arrangement should be just the other way round.

Most frogs, toads, and newts come out of the egg as tadpoles, furnished with gills which enable them to

breathe in water. This certainly, according to all evolutionary principles, should indicate that frogs, toads and newts are descended from fish. There is no other conceivable explanation of the phenomena. In their effort to establish man's descent from the ape, the evolutionists have so urged this point as to make it now rise against them. One frog (Rana opisthodon) is never a tadpole even in the egg, from which he emerges by means of a special opener on his snout. On the other hand certain newts, the Mexican Axolotl, the Triton Alpestris, etc., breed as tadpoles instead of in adult life.

"This looks like an attempt to climb down the genealogical tree instead of up," observes Professor John Gerard ("The Old Riddle and the Newest Answer," p. 195), in a phrase for which he thanks Professor Milnes Marshall.

In a scientific paper, reviewing Haeckel's Anthropogenie, Professor Marshall (*"Nature,"* March 24, 1892), exposed Haeckel's descriptions of human embryology as the descriptions of the embryo of dogs, pigs, rabbits, even chickens and dogfish. "A student," says Professor Marshall, "who relied on Professor Haeckel's description would obtain an entirely erroneous idea of the development of the human embryo. It is a matter of great regret that a book of 900 pages, bearing such a title, should be allowed to appear, in which the account of the actual development of the human embryo is so inadequate and erroneous." (Other frauds of Haeckel are described pages 51 and 53–59.)

In this connection Professor Gerard makes clear the all but impenetrable darkness through which, without a lantern to guide him, the evolutionist boldly attempts to make his way. He says: "Far more fundamental, however, is the remark of Mivart's, that if, as

Darwinians say, the development of the individual is an epitome of that of the species, the latter must like the former be due to the action of definite innate laws unconsciously carrying out definite pre-ordained ends and purposes. For although cells or embryos may be indistinguishable from one another, and may appear to us identical in constitution, their differences are absolute. Each is determined to be one sort of animal and no other, and can live at all only on condition of developing towards the prescribed form. Therefore, whatever evidence the embryonic forms may be supposed to afford in support of evolution, they have nothing in common with the haphazard process of natural selection.

"And here again Professor Huxley found himself obliged to enter his caveat, and to intimate his opinion that some of his friends were inclined to build too confidently upon this foundation. As his biographer Professor Weldon writes in the Dictionary of National Biography: 'Darwin had suggested an interpretation of the facts of embryology which led to the hope that a fuller knowledge of development might reveal the history of all the great groups of animals at least in its main outlines. This hope was of service as a stimulus to research, but the attempt to interpret the phenomena observed led to speculations which were often fanciful and always incapable of verification. Huxley was keenly sensible of the danger attending the use of a hypothetical explanation, leading to conclusions which cannot be experimentally tested, and he carefully avoided it.' . . . In the preface to the 'Manual of the Comparative Anatomy of Invertebrated Animals,' he says: 'I have abstained from discussing questions of ætiology (the science of causes), not because I underestimate their importance, or am insensible to the interest of the great problem of evolution, but because,

Courtesy Zoological Society.
Photograph by Edwin R. Sanborn.

Sapajou. Another tailed specimen of "man's earlier ancestors." It will be noted that the tail which man is said to have lost constitutes nearly a fourth of the body bulk of this creature.

to my mind, the growing tendency to mix up ætiological speculations with morphological generalizations will, if unchecked, throw biology into confusion.'

The Death of Darwinism

"Accordingly, Huxley himself based his faith in evolution on palæontological evidence, and attempted to decide the precise course it had followed only 'in the few cases where the evidence seemed to him sufficiently complete.' (As in the case of the horse, which is quite as preposterous as that of man, as we shall shortly see.)

"It will be asked how it comes to pass, if the Darwinian system really lies open to so many objections, that it occupies so large a place in scientific estimation. To this we must reply that, in spite of its great name, its success has throughout been popular rather than truly scientific, and that as time went on it has lost ground among the class of men best qualified to judge. Evolutionists there are in plenty,—but very few genuine Darwinists, and amongst these can by no means be reckoned all who adopt the title, for not a few of them—as Romanes and Weismann—profess doctrines which cannot be reconciled with those of Darwin himself.

"Meanwhile, an increasing volume of scientific opinion sets definitely against Darwinism as an adequate explanation of the philosophy of life, and falls into the view expressed long ago by Charles Robin (Dictionnaire encyclopedique des sciences medicales) who, as a freethinker, had no antecedent objections against it, 'Darwinism is a fiction, a poetical accumulation of probabilities without proof, and of attractive explanations without demonstration.'

"It would be tedious to cite testimonies at length,

but, in addition to M. de Quatrefages who has made a full and careful study of the whole question (Charles Darwin et ses precurseurs Français, and Les Emules de Darwin) may be mentioned such continental scholars as Blanchard (La vie des êtres animês), Wigand (Der Darwinismus und die Naturforschung, etc.), Wolff (Beiträge zur Kritik der darwinschen Lehre), Hamann (Entwicklungslehre und Darwinismus), Pauly (Wahres und Falsches an Darwins Lehre), Driesch (Biologisches Zentralblatt, 1896 and 1902), Plate (Bedeutung und Tragweite des Darwinschen Selektionsprincip), Hertwig (Address to Naturalist Congress, Aachen, 1900), Heer (Urwelt der Schweiz), Kölliker (Ueber die darwin'sche Schöpfungstheorie), Eimer (Entstehung der Arten), Von Hartmann (Wahrheit and Irrthum im Darwinismus), Schilde (Antidarwinistisches im Ausland), Du Bois-Reymond (Conference, August 2, 1881, etc.), Virchow (Freiheit der Wissenschaft, etc.), Nageli (Mechanisch-physiologische Theorie der Abstammungslehre, Schaaffhausen (Ueber die anthropoligischen Fragen), Fechner (Ideen zur Schöpfungs-und Entwicklungsgeschichte der Organismen), Jacob (Der Mensch, etc.), Diebolder (Darwins Grundprinzip, etc.), Huber (Die Lehre Darwins kritisch betrachtet), Joseph Ranke, and Von Bauer,—all of whom either reject Darwinism altogether, or admit it only with fatal reservations."

Even Professor Huxley who did more than any other man to spread the doctrine of Darwinism as the theory of natural selection said with most impressive reserve in his address, 1880 ("Coming of Age of the Origin of Species"): "History warns us that it is the customary fate of NEW TRUTHS to begin as heresies and to end as superstitions; and as matters now stand it is hardly rash to anticipate that, in another twenty years, the new generation, educated under the influ-

ences of the present day, will be in danger of accepting the main doctrines of the ORIGIN OF SPECIES, with as little reflection, and it may be with as little justification, as so many of our contemporaries, twenty years ago, rejected them."

The Burial of Darwinism

Six years later Professor Romanes (*Journal of Linnean Society,* vol. xix., 1886) declared: "At present it would be impossible to find any working naturalist who supposes that survival of the fittest is competent to explain all the phenomena of species formation."

Again, May 24, 1902, in his Presidential address to the Linnean Society, Professor S. H. Vines defined the actual position now occupied in scientific opinion by the Darwin hypotheses as follows: "It is established that natural selection cannot have originated any species. It is still a mystery why evolution should tend from the lower to the higher, from simple to complex organisms. The facts seem to admit of no other interpretation than that variation is not (as Darwin supposed) indeterminate (that is without a fixed purpose imposed upon it by something higher than itself), but that there is in living matter an inherent determination (a truly fixed purpose) in favor of variation in the higher direction." For the overwhelming evidence of a fixed purpose in nature (bio-chemic, metabolic, prophylactic pathologic, etc.), see the writer's work, "Science of Eating," in one volume, George H. Doran Company, New York, 1920.

This commentary of Vines merely means that Darwin's "Origin of Species" does not explain the origin of species, and that as to the laws thought to control the processes of evolution they are certainly not those which Darwin assigned.

One year later, January, 1903, Sir Oliver Lodge, writing in *Hibbert Journal,* p. 218, declared himself in similar fashion. These are his words: "Take the origin of species by the persistence of favorable variation; how is the appearance of these same favorable variations accounted for? Except by artificial selection not at all. Given their appearance, their development by struggle and inheritance and survival can be explained; BUT THAT THEY AROSE SPONTANEOUSLY, BY RANDOM CHANGES WITHOUT PURPOSE, IS AN ASSERTION WHICH CANNOT BE MADE." Nor does he stand alone in this conviction.

M. Fabre exclaims ("Souvenirs entomologiques," 3rd series, p. 317): "Let us acknowledge that in truth we know nothing about anything, so far as ultimate truths are concerned. Scientifically considered nature is a riddle to which human curiosity can find no answer. Hypothesis follows hypothesis, the ruins of theories are piled one on another, but truth ever escapes us. To learn how to remain in ignorance may well be the final lesson of wisdom."

The evidence of Professor Vines is confirmed in remarkable manner by Dr. A. Smith Woodward, Keeper of Geology in the National Museum of Natural History. Speaking before the International Congress of Arts and Science, September 22, 1904, he employed illustrations from the history of fossil fishes which were his specialty and from the evidence thus afforded announced: "It must be confessed that repeated discoveries have now left faint hope that exact and gradual links will ever be forthcoming between most of the families and genera. Even approximate links would be much commoner in collections than they actually are if the doctrine of gradual evolution (infinitesimal steps in gigantic periods of time) were correct. Palæontol-

Courtesy Zoological Society.
Photograph by Edwin R. Sanborn.

Another view of grandfather Orang, picturing the thoughtful old gentleman in an attitude of critical interest. To which class of the "educated" laity does he belong?

ogy indeed is clearly in favor of sudden changes which have lately received so much support from the botanical experiments of H. De Vries." (See the Congress Report, vol. iv.)

We have had "early changes of great violence followed by stability;" "slow changes so gentle and infinitesimal in gradations as to require millions of years before they could be observed;" "sudden changes under our very eyes." Alas, what have we not had? And this is what they call evolution!—this ceremonial burial of "Darwinism."

CHAPTER X

The Descent of Farce Comedy

Rudimentary organs—Ape blood and human blood—Asses' milk and human milk—"Resemblances" are differences.

But what about the existence of certain rudimentary organs which at one time served some definite end, but later degenerated as useless? Alas, for the value of this argument in behalf of evolution! The evolutionist is confronted by the fact that for a long time it was a common mistake to describe as "rudimentary" any organs of which the use was unknown or not understood.

An instance in point is cited by Professor Vernon Kellogg ("Darwinism Today," 1908, pp. 37-38): "Spencer's example of the femur of the whale is a striking illustration of the reality of the absurdity connected with the argument of change (evolution) on a basis of the selection of infinitesimal differences. The femur of the whale, says Spencer, is evidently the atrophied rudiment of a bone once much larger. It weighs now about an ounce, less than a millionth the weight of the whole body. Let us suppose that when it weighed two ounces, an individual (whale) had a femur which by variational chance weighed but one ounce, what advantage over other whales would the difference give it —and yet this is the argument for the reduction of useless organs through the influence of natural selection."

In the human body organs described as "rudimentary" have been found to fulfil most important and

most definite functions. The thyroid gland, the thymus gland and the pineal gland used to be classified as "rudimentary" organs. Today a new school of medicine has developed as a result of the discovery of the significance of these glands to metabolism and the maintenance of physiological equilibrium.

It is still popular to refer to the vermiform appendix as a rudimentary organ which the evolutionists classify as a remnant of the much longer intestine of the Trinil Ape-Man and the Piltdown Ape-Man. Eheu! They even fix the length of the intestine of—of what?

Many physicians are beginning to recognize the fact that appendicitis, a diseased appendix, is the result of hypercivilization, refined foods, overmilled white flour, demineralized breakfast foods and excessive meat-eating and not at all due to the so-called rudimentary character of the appendix.

As a member of the American Association of Clinical Research under the presidency of Dr. D. E. S. Coleman, professor of materia medica, Flower Hospital, the writer never ceased to marvel over the growth of this conviction among physicians and surgeons who are now giving, in many notable instances, particular attention to unprocessed and undevitalized foods, retaining the salts, colloids and solubles so ruthlessly rejected since the introduction of the high milling system in 1879.

Speaking of the appendix as a rudimentary organ, a dwindled organ, certain evolutionists, M. Ribbert, for instance, expressed the opinion that an obliteration of the cavity of the appendix, occurring during life, was a typical instance of the process of involution which if true would indicate that the appendix might seem to be really a rudimentary organ. But as observed by Wasmann, Dr. Joseph Koch demonstrated that these obliterations are to be regarded solely as con-

sequences of previous disease. Dr. Koch based his observations on two hundred operations, the records of which are to be found in "Archiv fur klin. Chirurgie," vol. LXVII, part II. Further proof of the accuracy of these observations was produced, 1904, by Dr. L. Aschoff (Proceedings of the German Pathological Society), after one hundred and three vermiform appendices had been placed at his disposal.

"But why," asks the evolutionist, "if there is really a design behind creation, should there be an inflammation of the appendix resulting in disease?"

In answer to this, leaving out all hint of theology and relying solely upon pathology, one can go direct to Germany where the whole theory of evolution, as now popularly presented, was born. One of Germany's most eminent pathologists, Professor G. Bier, the successor of von Bergmann, propounded and established the thesis (Virchow's Archiv, 1897) that inflammations are not instances of inexpediency, but are, on the contrary, beneficial prophylactic devices on the part of an organism to rid itself of bacteria or other injurious matter that may have penetrated the system. A splinter driven into the flesh and left alone will be driven out again by inflammation and pus, most expedient and beneficial.

As an instance of the popular ideas now current on evolution, a clipping from the New York *Times*, dated Paris, February 17, 1921, is eloquent. A modern evolutionist sent it to the writer as proof that man is descended from an ape.

Ape Blood and Human Blood

"The blood of a dog, for instance, differs from human blood, but even these tests fail in the case of the blood of some anthropoid apes. Their blood is so sim-

ilar to that of man that no test has been discovered which differentiates them."

This Parisian despatch to the *Times* was regarded as the last word on the subject of evolution, yet this same so-called "resemblance" of the blood of apes to the blood of men has gone the rounds for many years and an "educated" laity, predisposed toward the theory of evolution, have emphasized its importance, although the writer knows of no individual scientist who now speaks of it, even in guarded terms.

Resemblance between the blood of apes and the blood of men involves so many fantastic considerations that it actually throws any theory of evolution based on blood relationship into the zone of farce comedy. Doubtless the average layman reading a scientific statement to the effect that the blood of a dog injected into the veins of a horse will kill the horse, whereas the blood of a man injected into the veins of an ape results in a very feeble reaction, wherefore it is obvious that the dog and the horse bear no blood relationship to each other and just as obvious that man and the ape are blood relatives, would be tremendously impressed by the inferences and implications thus set forth.

The ape-manologists have fairly revelled in this sort of demonstration as a means of proving the theory of man's monkey origin. Consequently readers of the New York *Times* are not to be censured unduly for their uncritical gullibility in swallowing such "scientific" pabulum.

It is indeed a well-known fact that if the blood of one class of vertebrates, especially of mammals, be injected into the veins of other animals symptoms of disease appear, in consequence of the decomposition of the red corpuscles of one kind of blood by the serum of the other kind. No such consequences follow when

the two kinds of animals are closely related. The blood of a dog is poisonous to other mammals, wherefore it follows that the dog and other mammals are not related by blood. Eagerly seizing upon this phenomenon the monkey evolutionists wholly overlooked the ridiculous traps they were setting for themselves when they began to argue that the comparatively trifling consequences that follow the inoculation of the ape with man's blood prove conclusively that man is not only related to the ape, but is himself a true ape.

They either forgot or never knew that not only the blood but the blood serum of the sheep, goat and horse when inoculated into other mammals, including man, are followed by reactions quite as feeble as those traceable to the inoculation of the ape with the blood of man. When Élie Metchnikoff was director of the famous Pasteur Institute he wrote "The Prolongation of Life," 1908. On page 147 you will find the following: "The blood of a dog is poisonous to other animals, whilst on the other hand, the blood and blood serum of the sheep, goat and horse have generally little effect on other animals and on man. It is for this reason that these animals, and particularly the horse, are used in the preparation of the serums employed in medicine."

To be strictly orthodox as evolutionists we must now say that sheep and man, goat and man, and horse and man are related by blood.

In the course of his researches into the causes of sleeping sickness Professor Brumpt found that animals, when inoculated with the blood of men suffering from the disease, fell victims to sleeping sickness, except alone a few apes and pigs. Metchnikoff himself in his experiments with Edouard, his chimpanzee, endeavored to inoculate the creature with a virulent syphilis, obtaining, as have all the other experimenters in this direction, using monkeys and apes, results of start-

ling feebleness. From these facts are we to infer that the composition of human blood differs most completely from the composition of the blood of some apes and some pigs? The absurdity of such an inference would be manifest, but it shows how carefully we must proceed in drawing dogmatic conclusions from strained inference.

As far back as 1905 Professor Rossle presented evidence to show that the blood reaction does not in any manner indicate how closely any two animals are related. He demonstrated the fact that the chemical composition of the fluids of the body, such as the blood, is no more constant than the formation of the skeleton itself, for which reason evidence based on resemblance of blood is no more trustworthy in support of a common descent than that based on similarities of bone structure.

Yet Dr. Friedenthal at the Philharmonie, Berlin, 1907, declared that man was not only descended from apes but was a genuine ape himself. He based his assertion on experiments that were followed by a very feeble reaction when human blood was injected into the veins of apes. The feebleness of this reaction was employed by him to support his contention that man and the anthropoid ape are brothers. Three years earlier, 1904, at the Anthropological Congress at Griefswald, Dr. Uhlenhuth had reported positive reaction when human anti-serum was injected into the blood of pithecoid apes. On the same occasion the same Dr. Friedenthal reported positive results in connection with the lemuroids through whom Haeckel and H. G. Wells have traced man's descent.

Friedenthal was challenged by Erich Wasmann as to how, under such circumstances, he could still persist in his declaration that man was not only closely related to the ape but was a genuine ape himself. With

considerable embarrassment to his followers Friedenthal attempted to explain that he had merely pointed out what precaution must be taken to avoid certain sources of error, and was prepared to admit that a chemical and physiological likeness between two kinds of blood must not be regarded as establishing blood relationship. This admission was in violent contrast to his assertion that man is not merely descended from apes but is a genuine ape himself. Perhaps he foresaw the difficulty of admitting, as a result of his own processes of reasoning, that man was not only descended from goats, but was a true goat himself.

It is said that corrupt politicians when exposed usually seek to make one of their weaker members "the goat," wherefore the term "goat" acquires not only a criminological but a biological significance. Perhaps if the "goat" were capable of bearing a heavy load it would be more apt to call him a horse, as it is quite obvious from the blood proof that *man is not only descended from horses, but is himself a true horse.*

Dr. L. Duncan Bulkley, senior physician, the New York Skin and Cancer Hospital, presents evidence to show that "it is impossible to inoculate human cancer into apes." He also declares that animal tumors cannot be inoculated into animals of a different species, and that even rats and mice are immune to human cancer. (See "Cancer, Its Cause and Treatment," 1915, p. 20). Professor Arthur Keith declares: "If an ordinary monkey is infected with syphilis no real inoculation takes place; at the most only a passing disturbance is manifested. The chimpanzee and orang suffer only from the milder effects of the disease"—which is followed by such appalling havoc in man. Thus one by one from the platform of monkey evolution are the props pulled out. (See "The Human Body," 1910, p. 52).

Dr. Friedenthal did not know this in 1904 or in 1907. Otherwise he would have ventured no such assertion as: "Man is a genuine ape himself."

Asses' Milk and Human Milk

It is difficult to understand why certain types of scientists consider bodily differences or bodily resemblances of such vast importance when even to the layman the mental divergence constitutes the chief difference between man and beast. The rational soul of man, as distinguished from the brute instincts of the ape, constitutes a gap over which science makes no effort to throw a bridge of any kind. This difference will be emphasized as we take up the astonishing case of that "genius of geometricians," the Mason-bee.

What absurd conclusions might be drawn from the fact that of the milk of all animals human milk more nearly resembles ass's milk! Here the resemblance is marked not only by quantitative analysis, but by the fact that human milk, like ass's milk, leaves no residue of nuclein or paranuclein on digestion, and the casein of both produces an alkaline reaction.

Because of this resemblance Robert Hutchison, M.D., Edin. F.R.C.P., reported, 1911, that one of the large London dairy companies now keeps a stock of milch asses for the purpose of supplying ass's milk for delicate human babes.

Perhaps a comedian might argue from this resemblance that man, instead of being a true ape, is a true ass. Why, therefore, should we speak of a resemblance between man and OTHER apes. Why not speak of the resemblance between man and OTHER asses. The use of that word OTHER as well as the use of that word ALREADY has helped many an ape champion to score

a "deadly" point in his encounters with the impressionable populace.

"Fetichism," says H. G. Wells ("Outline of History," vol. 1, p. 123), "is only incorrect science based on guesswork or false analysis." Perhaps this sort of thing is an instance not of science, but of fetichism.

Next to ass's milk the nearest resemblance to human milk is to be found in mare's milk, but there would be more difficulty in proving that man descended from the horse rather than from the ass for the reason, as we shall see in detail a little later, that there is excellent warrant for the belief that the horse's own grandfather actually came into existence on this planet before its great grandfathers were born.

"Resemblances" Are Differences

It is customary among evolutionists to emphasize all the so-called morphological "resemblances" between man and the higher mammals, including the higher apes, as constituting so many points of evidence in support of the theory of evolution. The overshadowing differences and divergencies between man and all the higher mammals, including the higher apes, are so tremendous when contrasted with the superficial resemblances as to be all the more eloquent as points of evidence in refutation of the ape-man theory of evolution.

How can the evolutionist describe as "scientific" the segregation of these feeble and contradictory points of resemblance while at the same time turning his back upon the radical and irresistible points of difference and divergence which, judged by his own standards, are literally unanswerable as proofs of the absurdity of the hypothesis that man is a descendant of apes or of any other mammals?

In comparing the thigh bones of man and of the higher apes Professor O. Walkhoff declares:

"The radical difference goes so far that it is possible to determine analytically from any X-ray photograph of a frontal section, and even from any complete piece of bone, whether it belonged to a man or to an ape." The most casual comparison of the human skeleton with that of an orang-outang, one of the highest apes, discloses such extraordinary differences in the formation of the trunk and extremities as to make description wholly unnecessary.

The difference between the skulls of the higher apes and man, including all the Neanderthals, is most startling when we consider that the evolutionist has wasted so many years in trying to point out resemblances between them.

Even Darwin himself ("Descent of Man," Appleton, 1920, p. 65) was bewildered by the gulf of difference between man and the lower animals. "No doubt," he writes, "the difference is enormous, even if we compare the mind of one of the lowest savages with that of the most highly organized ape. The difference would still remain immense even if one of the highest apes had been improved as much as a dog in comparison with wolf or jackal. The Fuegians rank amongst the lowest barbarians; but I was continually struck with surprise how closely the three natives on board H.M.S. *Beagle* resembled us in disposition and in most of our mental faculties." Notwithstanding this difference he continues to argue that our ancestors have been able to mount from the brute to the human level. Concerning these Fuegians, Haeckel says ("Wonders of Life," 1904): "They approach close to the anthropoid apes." Haeckel's falsifications turn up at all points where they can be expected to serve his momentary purposes. No other scientist has so spe-

cialized in untruth. No other scientist has exercised such an influence on the corruptions of evolution.

In the ape's skull the brute characteristics are enormous. The lower face constitutes the bulk of the whole head, whereas in man the brain, the instrument of his spiritual life, is of vastly greater importance than his jaw. A comparison of the two should forever end the fantastic descriptions of the evolutionary zoologist, who never rests in his zeal to fabricate alleged resemblances. See O. Walkhoff, "Biolog. Zentralblatt," 1905, No. 6, pp. 182-184, and J. Ranke, "Der Mensch," vol. 1, pp. 437-444; vol. 2, pp. 3-203.

Professor Oscar Schmidt ("Descent and Darwinism," 1896, pp. 289-290) says: "In the ape the three bones forming the axis of the skull, the basi-occipital bone and the two sphenoid bones, lie almost in a line, whereas in man there is a double flexure of this axis; moreover, in the apes the angles increase with age, which in man decrease, and vice versa. Likewise in man the occipital foramen becomes more horizontal with age, more vertical in the ape. The two series, ape and man, diverge from one another. The ape, as he grows, becomes more beastly, man more human. The flexure of the basal bone and the horizontal position of the occipital foramen occasions the upright gait, wherewith the differentiation between hands and feet is completed. This flexure of the cranial axis may therefore still be emphasized as a human character, in contradistinction to the ape." Schmidt, it must be remembered, speaks not only as a professor in the University of Strasburg, but as a confirmed evolutionist.

For a refutation of the points of evidence based on the so-called biogenetic law, heretofore referred to as the theory of Fritz Müller so highly elaborated by Ernst Haeckel, the student may consult Erich Was-

Orang Skull

Human Skull

Note these two skulls. One is the skull of what is said to be the most human-like anthropoid ape, the orang. The other is a human skull. In both cases the lower jaws are attached. None but an ape-manologist can see in them the faintest resemblance. Draw an imaginary line through the center of each picture, cutting off the cranial regions from the face. The simian is brute, the human is man. Remove the lower jaw of the human skull and cut off what remains of the face. The brain-pan will give you a hint of what man owes to his soul. Perform the same operation on the ape's skull. What remains of the brain-pan would not honor a Newfoundland dog. Without a soul man might be similarly organized.

mann, "Modern Biology," pp. 446-462. The whole subject, despite the long and persistent effort to give it dignity, is so far-fetched, so contradictory and so self-destructive as to be scarcely worth passing mention. An instance is sufficient to disclose the general nature of the "proofs" which it presents in its demonstrations of man's descent from the ape.

The formation of the placenta is regarded as one of its most convincing points of evidence. In the monotremes, spiny ant-eater and duck-bill, which are the lowest mammals, the placenta is entirely absent. It is not even present in rudiment for the reason that there can be no rudiment of that which never had existence. Here evolution misses a most important cog and the biogenetic law receives a staggering blow.

In the marsupials the placenta occurs but rarely and in a very imperfect form, yet all the higher mammals are called placentals to distinguish them from the monotremes and the marsupials which, it must be remembered, are also mammals.

If the higher mammals are distinguished by a placenta which the lower mammals lack, what is to be said of the smooth shark complication? Perhaps the smooth shark, which is a fish, is in the direct line of man's descent because it possesses a placenta. *Man by turn, is a true ape, a true goat, a true sheep, a true horse, a true ass, why, also, is he not a true shark?* The placenta is a strong argument in that direction and it would appear that the genus "profiteer" possesses many characteristics in common with the smooth shark. Certainly he is "smooth," and there are few indeed who fail to recognize him as a "shark."

Notwithstanding the fact that the marsupials and monotremes are placenta-less, as discovered by Aristotle and confirmed by Johannes Müller in the nineteenth century, a placenta occurs in the smooth shark

which, let us repeat, is not now a mammal and never was one.

As reported by Wasmann, recent research reveals the presence of a placenta even in some Arthropods. Kennel has discovered it in the American Peripatas and Poljansky described it in the Indian scorpion (Zoolog. Anzeiger, 1903, No. 2, pp. 49-58). This demonstrates that either the existence of a placenta has nothing to do with any direct relationship between any of these animals, or it compels us to accept the theory that THE INDIAN SCORPION IS THE ANCESTOR OF ALL THE PLACENTAL MAMMALS, INCLUDING MAN!

CHAPTER XI

H. G. Wells

Repeating old tales—Reverence for bones—God and the sacraments—The wild women of Wells—Wells' mutilation of Wells.

As if in defiance of all the palæontological and zoological evidence to the contrary, H. G. Wells devotes 103 pages, vol. 1, "Outline of History," to an elaborate moving picture of man's descent from the ape. His "logic" is a thing of awe and wonder. He elaborates exactly ninety-six premises for his conclusion "it follows, therefore." These ninety-six steps of departure establish a new system in the tracery of deduction. There can be no more adequate or accurate method of describing an object than the exhibition of the object itself. Therefore, Wells' ninety-six steps, in the form of the very phrases he employs, are lifted from his stairway of "reason" without alteration, mutilation or change of any kind. Here they are:

Phrases Used	*Number of Times*
Is probably or was probably	20
It must have been	12
It would seem	11
It may have been	9
May or may not	8
Perhaps	5
It seems to be	5
It is probable	4
Possibly	3
We may guess	3

Phrases Used	*Number of Times*
So far as we can guess	1
This is pure guessing, of course	1
It is supposed	1
They suppose	1
If we assume	1
It appears to be	1
It is possible	1
It may be possible	1
It is doubtful	1
It is commonly asserted	1
Almost certainly	1
Are said to be	1
Whole story is fogged	1
As yet we do not know	1
Confessedly jumbled	1
Inextricably mixed up	1

This halting, faltering, stumbling gait is dignified by Wells' admirers as the logical stride of science from pure hypothesis to "it follows, therefore." Conscious always of the uncertainty, the fog, the darkness, the jumble, the inextricable mix-up through which he plods, Wells nevertheless is determined to get to man's ancestor, the lemur, as quickly as possible.

The Piltdown jaw bone and the Piltdown cranium are in his way and must be disposed of. Wells wants to believe that jaw bone and cranium belonged to a "first-man" because their resemblance, as patched up by reconstructionists whose reconstructions couldn't stand the strain imposed on them, is strong enough to give a sort of starch stiffening to the so much desired conclusion that man and monkey were alike back there when the early sub-man played jackal to the sabre-toothed tiger, finishing up the carcasses on which the latter had gorged itself.

But Wells, alarmed by the exposure of the Piltdown

trick, and worried by the fact that he has on his hands nothing but a first-class forgery, is further warned by his friend, Professor Lankester, that he "is stumped and baffled!" So with the charm of one who coyly averts embarrassment by way of the diplomatic route he repeats the dictum of Sir Ray Lankester: "The most prudent way is to keep the jaw and the cranium apart in all argument about them." (See "The Outline of History," MacMillan, 1920, pp. 73-74.)

Could anything be more delightful, more naïve, more ingenuous? Found together, these two bones must now be kept apart unless it be granted as a matter of prudence, that the brute-bone be man-bone or the man-bone brute-bone, with man and brute more nearly related than Tweedle-dee and Tweedle-dum.

Reverence for Bones

Elsewhere Wells warmly affirms that "upon these fragile Piltdown fragments alone more than a hundred books, pamphlets and papers have been written. These scraps of bone are guarded more carefully from theft and wilful damage than the most precious jewels, and in the museum cases one sees only carefully executed facsimiles."

Many are the scoffers, including Wells himself, who laugh at humans for reverencing the bones of saints. Thus science is confronted with the necessity of defining the difference between reverence for saint relics and reverence for monkey relics. *What a precious heritage! What jealous guardianship! What scientific piety and devotion! To what a noble purpose!*

Acquiring boldness, Wells dismisses the obstacles that have all but crushed him and announces that the Piltdown man, like the Heidelberg man and the Neanderthal man, "may have had a very big body and large

forelimbs. He may have been a wholly strange-looking creature.

"The sub-human running apes and sub-men, if they were not on the line royal, were on a very close collateral. The sub-men were running about Europe four or five hundred thousand years ago. Our ancestor was a beast, not a man; not an arboreal ape like the chimpanzee. Our ancestor was a walking ape scattering stone tools over the world."

Wells indicates that he has arrived at this knowledge by reason of the ninety-six steps that have led him to it. There is no "maybe" or "perhaps" about his positive and emphatic emphasis which he refuses to admit is quite as wobbly as the wobbly premises on which he sets it up.

Strange to what depths of dogma the anti-dogmatist may descend! Does Wells have no enlightened moments at all? Oh, yes. He has them. Listen to this. "We find fossils of monkeys and lemurs," he says, "but of one particular creature we have as yet not a single bone."

Is he perturbed by lack of bones? By no means. He goes on without transition or a single bone precisely as follows: "It was half-ape, half-monkey. (Perhaps Wells means half-ape, half-man). It clambered about the trees and ran, and probably ran well, on its hind legs upon the ground. It was small-brained by our present standards, but it had clever hands with which it handled fruit and beat nuts upon the rocks and perhaps caught up sticks and stones to smite its fellows. IT WAS OUR ANCESTOR."

What has become of all the facts? Evolution has developed Wells, the novelist, into Wells, the scientist, and subsequently into Wells, the historian, all of which, of course, has taken place after "lungs were launched into the world." Thus comes the historical picture

limned with a scientific brush in which we can see lumbering into the foreground the Neanderthal man who "wouldn't allow any other adult male in the group. He is surrounded by women, boys and girls. When the boys are big enough to rouse his jealousy he falls foul of them and kills them off." But let Wells describe the picture. These are his words concerning this rotten meat eater: "When he found dead animals, semi-putrid, he would relish them none the less. He would eat his unhealthy children. He would seek larger animals in a weak and dying state. Failing to find them, dead and half rotten examples would be made to suffice."

God and the Sacraments

Stiff stench was highly favored! "In fact," declares Wells, "unpleasant odors are not objectionable now in many continental hotels, and the taste for half-putrid game still survives." This Neanderthal male-killer was known as the "Old Man." As the weaker members of the tribe had to worship him they developed the evolutionary conception of God. Wells quotes "authorities" to prove this! See "Outline of History," vol. 1, p. 131.

Wells does not like the Mosaic and Christian idea that originally man, endowed with free will and a sense of moral responsibility, could have fallen from grace. Man could never have fallen. He was always coming up. Wells doesn't like the idea, shared in common by Jews and Christians, that into the body of the first man, whom Wells does not call Adam, God breathed an immortal soul. *"And the Lord God formed man of the slime of the earth: and breathed into his face the breath of life, and man became a living soul."*

Wells does not like the idea that from a state of grace man fell after he had been endowed with a free will to do good or evil as he might see fit. Wells does not like the Incarnation, the Atonement, the Resurrection. He dismisses Christ altogether. In his ape-man pedigree there is no place for Christ. He will accept none of the clear and uncompromising demands made by Jesus of Nazareth for an absolute faith in Himself. The Son of Man is to be described, if described at all, as the Son of Ape.

Wells describes the evolution of the ape-man's conception of a "Sacrament" as the killing of sub-men at seed time in order to prepare a ceremonial feast in which the tribe eats portions of the body of the pre-human victim so as to share in the sacrificial benefits. See "Outline of History," vol. 1, pp. 130-131.

From his heap of rejected reconstructions Wells cries out: "Man at that time was not a DEGRADED animal for he had never been higher. He was, therefore, an exalted animal, and, low as we esteem him now, he yet presented the highest stage of development of the animal kingdom of his time."

The Wild Women of Wells

After his exalted Neanderthal man, Wells introduces his still more exalted Palæolithic man. This was the fellow who, says Wells, "drove the Neanderthal man from his stone quarries and refused to take the women of the defeated or to interbreed with them. There is no trace," he argues, "of any intermixture between the races." Obviously he is unacquainted with the scientific facts recorded here, yet they were as readily available to him as to the writer.

Has he an explanation for his assertions? Of course he has. Meditate upon it if you would realize the ex-

tent to which the "scientific evolutionist" tends to misdirect the bark of truth into forlorn courses.

The Palæolithic men refused to mate with the Neanderthal women because those women "were extremely hairy, ugly, of a repulsive strangeness in appearance, with low foreheads, beetle brows, ape necks and inferior stature, too fierce to tame."

There was no stopping at rotten meat or the eating of sick children, but when it came to those wild women —alas, alas! Why, indeed, should the descendants of such beasts yield reverence to Moses or Christ? Why should there be such speculation concerning an immortal soul, a future life? Why should the ouija board or the spiritist be worked overtime by the lineal offspring of the lemur? Why should men respect the commandment—"Thou shalt not kill"—or any of the other commandments now held in such contempt in a world in which killing, lynching, rape and graft can have no terror for the progeny of apes? Why meditate on chastity, mercy, justice, benevolence, honesty, truth? Why not take? Why not kill?

All man's discoveries and inventions, metallurgy, physics, mechanics, mathematics, astronomy, chemistry, electricity, bacteriology, have sprung from no divine intelligence in man, made in the image and likeness of God, but from his own brute dirtiness. Thomas Carlyle thundered against this idea. That it has been revived is but another instance of periodicity.

"Men," says Wells, "got copper from ore by the chance putting of lumps of ore among the ordinary stones with which they built the fire pits they used for cooking. In China, Hungary, Cornwall and elsewhere copper-ore and tin-stone occur in the same vein; it is a very common association, and so rather through dirtiness than skill the ancient smelters hit upon the harder and better bronze."

As a "historian" Wells is very sure of himself in other "scientific" matters that have no science in them. "The Neolithic men," he says, "made exceedingly solid and heavy bread. Apparently they had no yeast. If they had no yeast they had no fermented drinks."

He might have said: "If they had no fruits or fruit juices they had no fermented drinks." It wasn't necessary to have a cake of yeast to make fermented wine from the juice of the grape or from the juice of any other fruit. But perhaps they had no pots in which to put the fruit juice from which wine is made.

But they did have pots. Wells presents pictures of their pottery and says: "They stored grains in pots."

Had they stored fruit juice in the same pots they couldn't have avoided wine for the reason that they couldn't have stopped the fermentation. Yeast was in the air, for yeast, according to Wells himself, was among the first forms of plant life antedating animal life on this planet by ever so many millions and millions of years.

"They ate no poultry or hen's eggs," he announces with scientific assurance, and to prove his statement he informs us that "the hen is not mentioned in the Old Testament." Perhaps if he were to refer to the third Book of Kings, fourth chapter, twenty-third verse (which is certainly in the Old Testament) he would discover the reference to the fatted fowl that were served to Solomon a thousand years before Christ.

Who will explain the enthusiasm of educated men upon the appearance of Wells' history, including its ape-men, yeast, wine, bread, eggs, hens and the Old Testament, to his ignorance of which he appeals in this astounding manner? It wasn't so long ago that educated men accepted with pæans of praise the astounding "discovery" of Dr. Friedmann, whose "turtle serum cure for tuberculosis" is now never heard of.

It wasn't so long ago that educated men, including the deans of universities, grave and reverend seniors, representatives of scientific bodies, together with the crowned heads of empires, with lavish eulogies accepted as "established" the discovery of the North Pole by Dr. Cook, banqueting that gentleman with mock turtle soup and Burgundy.

There was a suggestion of plausibility behind the Cook assertions, but suggestions of plausibility never constitute fact. There is a suggestion of plausibility in every hypothesis, but a fact and a hypothesis are not the same thing. A hypothesis may break down altogether at the very outset; a fact goes right on to the end.

Wells' Mutilations of Wells

Apparently much that was said in The Outline of History, as originally published in two volumes, was hypothetical, although uttered as fact. Perhaps the shadows of hypothesis fell too heavily upon that first edition which so solemnly explained man's mysterious origin, his evolutionary progress and his sublimated simian destiny, for now very much of those first two volumes has been broken down—by Wells himself.

The new Outline of History, revised and rearranged by the author, and known as the third (American) edition, does not take his readers into his confidence through any disclosure of the nature or extent of the alterations made by Wells, the evolutionist, on the work of Wells, the historian, and vice versa.

How much Wells, the evolutionist, has added to the knowledge of Wells, the historian, or to what condition the opinions of Wells, the historian, have been reduced by Wells, the evolutionist, or to what extent the convictions of Wells in either rôle have been subjected to mutilation, the author gives no hint.

Possibly a professor here or there may have whispered to a professor there or here that the Wells' chronology of early Egypt had been plucked out of old books no longer regarded by scholars as authoritative. One might easily arrive at such an inference when one remembers that the Darwinian books which have had such a powerful influence upon the author of The Outline of History have been shelved and abandoned.

At any rate, in the new edition Wells confesses that Egyptian chronology is "still a matter of discussion." He makes no such confession with respect to evolution, although from the revision and rearrangement so many statements, which formerly decorated the original work, have been dropped, that the student of evolution who would wallow through the confusion evolved through these surgical operations might do well not to trust his passage too far without a searchlight.

One could ask Wells why he has omitted his earlier note on Professor Burrell's contribution to the Yale lectures, "The Evolution of the Earth and Its Inhabitants," which adorned p. 6, vol. 1 of the first edition. Why has he omitted all reference to Sir William Dawson's Canadian dawn-animal (Eozoon Canadense), now regarded not as the fossil vestiges of once living things which have long since vanished from the earth, but as mere crystalline markings in the Canadian rock formations in which they are found? The discarding of all reference to this overworked fossil folly, as found vol. 1, p. 9, is either significant or it is not significant. In the former case, was Wells sure of his ground? In the latter, is he not so sure?

Why has he rejected his "torn, disrupted, interrupted, flung-about, defaced Record of the Rocks," and upon whose advice, and for what reason has he flung overboard the whole of page 12, vol. 1?

Why has he amputated his former references to

Lord Kelvin and Professor Huxley, whose variegated guesses as to the age of the earth are separated by a gap of 375,000,000 years? Why has he dropped Professor Osborn's guess and all other guesses that clash with the racing speed and evolutionary purpose of his tale? The fact is that all these guesses, originally found in vol. 1, p. 13, are not to be found in the revised edition at all.

Why has he forsaken the whole of Chapter V, in which he instructed us in "Why life must change continually"? Why does he now say: "We cannot discuss fully here the changes that have gone on and are going on in the climate of the earth," when these changes are precisely what he did discuss in vol. 1, pp. 29 to 38?

Why does he give us an entirely new theme to brood over when, in the revised edition, p. 38, with no thought of Hades in his mind, he says: "We may be moving now towards a warmer place." True, he adds, "half a million years hence this may be a much sunnier and pleasanter world to live in than it is today." Many changes may take place within the next half a million years, and as an evolutionist one is quite safe in hazarding a whole scow-load of prophesies, the fulfilment of which is to be so comfortably postponed. But with respect to what is actually going on in the world here and now, Wells has stumbled awkwardly through a prophetic vision that refused, as the sporting writers would say, to run true to the dope sheets. In his first edition he was sure that the Soviets of modern Russia were destined to control that distracted country. In the revised edition he is forced to admit that "the Soviets have little or no real directive power."

He exhibits evidence in the revised edition that as an orthodox evolutionist he is rather muddled about the evolution formula to which he clings tenaciously in accepting the dictum that "evolution demands diminu-

tive beginnings," insisting, for instance, that the first horse, Eohippus, was smaller than a squirrel, becoming through successively larger stages through millions of years of evolution the full-fledged creature now rapidly evolving into a gas-eating jitney.

Wells seems to assume that while the horse, conforming with evolutionary demands, was gradually growing larger, the dog was wholly ignoring these demands by gradually growing smaller. He says, revised edition, p. 43: "In pursuit of such beasts came great swarms of primitive dogs, some as big as bears." Perhaps these monster dogs, which have evoluted into creatures much smaller than bears, were provided with wings like bees. How else could they have swarmed?

In the original, vol. 1, p. 57, Wells describes the small-brained half-ape half-monkey, by which he possibly meant a half-anthropoid without a tail and a half-pithecoid with a tail. Ever so positively, whatever his meaning, with tail or without, he said, as has been noted elsewhere: "It was our ancestor."

Why does he now abandon this assertion, substituting in the revised edition for the old phrase, "It was our ancestor," an entirely new phrase: "Spite of the lack of material evidence, the facts of biological science almost compel us to believe that such a creature existed."

Does Wells mean that if it did exist it was our ancestor, or that if it didn't exist it wasn't our ancestor, in which latter case we shall have to look for some other kind of ancestor? His use of that word "almost," in the phrase "almost compel us to believe," suggests the squatting of a doubt where once stood certainty erect. Whence came that doubt? There is no answer.

Why, from the original edition, does he throw out the whole of Section 5, Chapter VIII, with its awkward

contradictions growing out of Sir Ray Lankester's letter on the Piltdown jaw bone. This striking omission is accompanied by another omission equally striking. In the new edition there is no mention of the fact, recorded in the old, that G. S. Miller, the American anthropologist, had concluded that the Piltdown jaw bone never was the jaw bone of a human being for the very good reason that it was always the jaw bone of a chimpanzee.

Such contrasts must ever make one marvel over the agility of the evolutionist in pruning his geological tree or in grafting upon it, according to the capricious demands of this or that edition. In the original, vol. 1, p. 88, Wells stumbled into a frank moment which took expression worthy of note. "Now here again," he said, "with every desire to be plain and explicit with the reader, we have still to trouble him with qualified statements and notes of interrogation. There is now an enormous literature about these earliest true men, the men of the Later Palæolithic Age, and it is still for the general reader a very confusing literature indeed. It is confusing because it is still confused at its source."

Why, from the revised edition, has he deleted this confession of confusion? Is he any the less confused? If so, why has he not shared the increasing clarity of his mind with his reader? Does not greater confusion rise from the suppression of the evidence of confusion?

But he goes on (in the original) to say: "The whole story is further fogged at present by our inability to distinguish, in the absence of skeletons, which race has been at work in any particular case. The honest answer is: As yet we do not know. Confessedly our account is a jumbled account, inextricably mixed up." Why (in the revised edition) has he blotted out all these references to fog, confusion, and honest answers?

Is it that he feels the revision will be regarded as more honest by reason of the fact that it smothers such hints of honesty?

Furthermore, in another odd moment of doubt and insecurity, he says in the original, vol. 1, p. 96: "We may very well be dealing with the work of more or less contemporary and different races when we think we are dealing with successive ones." Why, in the revision, has he used the knife on this confession of uncertainty?

In the original he accounts for the evolution of agriculture on the ground that strong winds blew the grain out of primitive man's rude vessels and scattered it while he was digging up fresh ground to make a grave for a corpse, so that, returning later to the spot, an exceptionally vigorous growth of food grain would be discovered.

The revised edition abandons this quaint idea. The "exceptionally vigorous growth" of grain sown by accident over the body of a corpse suggests the evolution of the fertilizer industry. The ordinary growth of grain might be "vigorous," but grain, springing from ground fertilized by a corpse, would be marked by "an exceptionally vigorous growth." Such proofs of evolution are eloquent. Why has Wells abandoned them?

In the original Wells describes the "Old Man," the fierce and brutish creature who fell foul of his own sons when they grew old enough to excite his jealousy and who ate his own children when they were sick. This was novelty enough, but in the revised edition, in keeping with its evolutionary quality, he has introduced another novelty, not, apparently, without great certainty of conviction, considering the number of uncertainties that have been rejected. "More human," he says, "and kindlier was the Mother, who helped and

sheltered and advised. The psycho-analysis of Freud and Jung has done much to help us to realize how great a part Father fear and Mother love still play in the adaptation of the human mind to social needs. They have made an exhaustive study of childish and youthful dreams and imaginations, a study which has done much to help in the imaginative (sic) reconstruction (sic) of the soul (sic) of primitive man. Thus," he concludes, "the Old Man mingled with his fear of the dangerous animals about him but the women goddesses were kindly and more subtle."

Despite the influences involved in the phrase "imaginative reconstruction" there is no diagram to indicate what all this signifies. It would seem to be merely new and more certain matter substituted for old rejected uncertainties. But these rejections have been shovelled out of the revision in such wholesale fashion that one scarcely may follow them. For instance, while the pictures in the new edition have been preserved, all references to the stumbling blocks suggested by the old subdivision of the Caucasian races (vol. 1, pp. 142-146) are omitted. Huxley's belt of brown-skinned men (vol. 1, p. 147) is also omitted.

What purpose was thus served in killing off the brown-skinned men? "It may clear up the necessarily rather confused discussion of this chapter," says Wells, in the original, "to give a summary of the views expressed here in a diagram." The diagram is given and Wells goes on at considerable length to interpret it. In the revised edition all hint of the confusion of discussion has been silenced and the whole of Section No. 5, of Chapter XIII, vol. 1, is missing.

So Wells oscillates back and forth between additions and rejections, yet with respect to the scores of notes gracing almost every other page of the original, he has assumed a granite-like positiveness, not to say ruth-

lessness, of purpose. All these notes have been lopped off and flung out so that the reader who studies the revised edition, without the original beside him, can never trace Wells, the evolutionist, or Wells, the historian, to the long-since abandoned authorities whom, like fossil vestiges, he has dug from their graves, flinging their unidentifiable fragments into a jumbled heap which an awe-stricken world is prone to characterize as new and marvelous.

It is not surprising, therefore, to find one who formerly was an enthusiastic admirer of Wells, turning sour. Allen Dawson, editor of the New York *Tribune,* observed, November 29, 1921: "But with its stricter sense of responsibility our London contemporary must have been in a mood of high optimism when it assumed that Mr. Wells would, or even could be fair.

"His popularity as a writer is largely due to his inability to see two sides to a question. He is a brilliant representative of the not unnumerous class of modern writers who first reach a dogmatic conclusion agreeable to their prejudices and then scurry around to muster support for it."

Unfortunately it is not to be assumed that, notwithstanding the clash between the known facts on the one hand and the Wells opinions based on what once were thought to be facts, on the other, his hundreds of thousands of readers will pause to consider that the old sophistries and the long-since refuted inferences are really not a marvelously compact evolutionary digest of biology, zoology, palæontology, sociology, etc., but rather a revamping in giddy decorations of dead controversies made over to look like new.

CHAPTER XII

Tricking Huxley and the World

Tricking Huxley and the world—The Osborn conundrums.

Professor Henry Fairfield Osborn knows that the "Propliopthecus Haeckeli" is not only a hypothetical creature but a very insincere and ridiculous creature, yet Professor Osborn, "informing" the school children and their teachers how our immediate ancestors did not live in trees but how a million years back of them our remote ancestors, pre-human apes, did live in trees, refers in his enlightening panorama of pictorial proof to the "Propliopthecus Haeckeli."

It is admitted that Professor Osborn protects himself, but only against the careful reader, by his use of the word "hypothetical" in describing the "missing link" that bears Haeckel's name.

As a scientist Professor Osborn must know that in palæontological and zoological matters children are not expected to be super-critical or even careful readers. For them the use of a single word "hypothetical," tucked away, as a footnote, in small type, in the midst of terrific plaster busts of apes, ape-men, sub-men and true men, can create no such graphic and crushing impression as the spectacular series of awesome brutes by whom the one grand impression, the one and only impression, the obviously desired impression is made.

What do the school children know of Haeckel and his falsifications? Even Professor Huxley was led for a time to accept them without challenge. Huxley was

leaning heavily on geological supports which, because of their weakness, were in danger of collapsing. He needed just such stuff as Haeckel's to hold him up.

Among Haeckel's frauds is his "Progonotexis Hominis," published in honor of the opening of the new Phyletic Museum at Jena, 1908. In the text all the early RACES of men are changed into so many SPECIES, but on the pedigree of primates they appear again as RACES not as SPECIES. In this large folio he sets against the ancestors of his own invention in the pedigree of man, the same mark that he uses against the fossil forms of extinct primates. The same little cross stands beside both as a sign that both are extinct. Thus his purely imaginary forms are on the same level of dignity with real fossils, deceiving his uncritical reader as to the true value of this fabricated human pedigree.

As early as 1868 Rutimeyer, the Swiss zoologist, accused Haeckel of tampering with his illustrations. In 1874 the anatomist, Anton His of Leipzig, proved the charges of tampering to be irrefutable. In these frauds Haeckel caused the same plate to be printed three times in his "History of Creation," declaring that the illustrations represented three distinct objects extremely like one another. In 1906 the charges of Professor Arnold Brass published as "Ernst Haeckel als Biologe und die Wahrheit," against Haeckel's tampering with the illustrations of embryos attracted tremendous attention in Germany. Again, April 1, 1908, in an address delivered at a meeting of the Christian Socialists in Berlin, Brass renewed his attack upon Haeckel on the charge of having falsified the pictures of embryos. Brass showed that Haeckel in his "Anthropogeny," had not only falsified the illustrations of embryos but had assigned to them other names than those they had originally borne, thereby provoking

Professor Anton His to declare publicly that Haeckel was lying. "I can make these charges," said Brass, "from accurate knowledge, directly acquired, since I myself made the true drawings for Haeckel."

The editors of the *Allgemeine Zeitung* wrote Haeckel, offering him their columns for a short reply to the attack upon him, known as the Tartüffe attack, saying that they had printed it with profound regret though they had been compelled to do so because it came from a source raised high above doubt both as to scientific knowledge and loyalty to German science. Haeckel, accusing Dr. Brass of "representing the Protestant Jesuits of the Kepler League," refused to take advantage of the *Allgemeine Zeitung's* columns to defend himself. He says ("Sandalion," English translation, 1910, p. 16): "Of course I did not accept the *Allgemeine Zeitung's* offer but sent my reply to the *Berlin Volkszeitung,* the editor of which is one of the few liberal newspaper heads who have worked for the advancement and application of the doctrine of evolution."

Haeckel replied to the Brass charges, which included an analysis of Haeckel's use of the skeleton of the gibbon, orang, chimpanzee, gorilla and man in these words: "These tables show intentional falsifications to uphold the false caption (skeletons of the five anthropoid apes). "The uprightness of man's carriage is concealed. The gorilla's knee has been pressed to make it appear to be standing straight. The walking posture of all the apes is false. This table is an example of how Haeckel misuses the works of other people." Haeckel asserted that if he were to be accused of falsifying the illustrations of embryos that similar accusations must be brought against hundreds of other highly respected embryologists, anatomists and zoologists, for the reason that they all practised falsifications as

much as he himself and had in many ways "schematized" their illustrations.

"By 'schematized,' " he explains, "I mean I omitted unessential adjuncts and strongly emphasized essential form relations. I also filled in deficiencies here and there by comparative syntheses."

This was confession enough. Certainly it contributes to an adequate appreciation of the sweeping judgment rendered by Professor Ch. Deperet ("Umbildung der Tierwelt," p. 113): "The embryological methods of Haeckel have led the whole of palæontological research in a wrong direction."

In the *Deutsche Medizinische Wochenschrift,* 1909, Professor Keibel of Freiburg published a crushing criticism of Haeckel's falsifications. As to whether they were falsifications or "inaccuracies" an illustration will disclose. Haeckel had put a human head on an ape embryo, and this in spite of the fact that Professor Brass had personally shown Haeckel the correct illustration. Haeckel had cut off the tail of the embryo of a macacus (tailed monkey) and turned it into a tailless ape (gibbon). He could hardly have done this without knowing he was doing it, and he would have indulged in no such "inaccuracies" without a deliberate purpose. Perhaps we can suggest that purpose.

Haeckel's confession that "six or eight per cent." of his drawings were falsified but no more than six or eight per cent. appeared in the *Berliner Volkszeitung,* December 29, 1908. Haeckel described the paper as "liberal." His friend Joseph McCabe (Haeckel's Embryo Drawings, p. 37), describes the *Berliner Volkszeitung* as "anti-clerical." With this fact in mind, including the fact of Haeckel's refusal to defend himself in the columns of the *Allgemeine Zeitung,* we

Courtesy Zoological Society.
Photograph by Edwin R. Sanborn.

Chimpanzee with arms shaved. Forced to sit in a chair. Note thumb on "foot" and stump of thumb on hand. Compare supra-orbital ridges and ears with gorilla and orang.

are prepared to step beyond the bounds of controversy into a mass of facts that speak for themselves.

Despite all the evidence to the contrary, Haeckel declares (Welträtsel, p. 99): "In the last twenty years a considerable number of well preserved fossil skeletons of anthropoid and other apes have been discovered, and amongst them ARE ALL THE IMPORTANT INTERMEDIATE FORMS, WHICH CONSTITUTE A SERIES OF ANCESTORS CONNECTING THE OLDEST ANTHROPOID APES WITH MAN."

When Haeckel wrote that passage he knew that not only was there no such series in existence, but that there was not a single fossil fragment of a series in existence. The falsehood was deliberate.

So, too, was the falsehood of his "Anthropogeny," exposed by Professor Milnes Marshall. In true Haeckelian style the human embryo as described by the Jena mutilator was shown to be a description of the embryos of dogs, pigs, rabbits, even chickens and dogfish. Such were the frauds which the apostle of evolution did not hesitate to present to the world as "evidence" for "Darwinism." See *Nature,* March 24, 1892, also this work, pp. 52 and 117. In the writer's study of the chimpanzee at the Bronx Zoo, New York City, the conclusion was inescapable that this great ape, like the gorilla, gibbon, etc., never had a tail.

The evolutionist tells us that man's tail, inherited from the lemur, a monkey which had a tail like the tail of a fox, was gradually evoluted off (like the horse's toes) as he abandoned life in the trees for life on the ground, but Haeckel, off guard, describes "living human races who still live in trees" ("Wonders of Life," 1904). They have no tails—of course! Their tails were evoluted off! Presumptively the tails of the great apes were also evoluted off—during those millions of years of evolution—completely off, despite

their usefulness for life in the trees. Yet with the "improvement" represented by tail-less-ness, there was no systematic improvement in other directions. The chimpanzee never lost those supra-orbital ridges which today are identical with the oldest fossil ridges.

Nor was there any gain in cranial capacity! Obviously the evolution of the great apes was limited—expressly limited—to tails—or rather to the loss of tails! Even the elephant has kept his tail, as well as the rat, though neither creature lives in trees. Natural Selection, confronted by the fact of tail-less-ness, must insist that the chimpanzee never had a tail. But this makes matters worse! Natural Selection demands that for his life in the trees he should have "developed" a tail because of its usefulness to an arboreal existence, just as the giraffe developed a neck for its arboreal usefulness. Haeckel did not see the consequences of his fraud; for his tailless embryo, designed to create an impression in one direction, merely serves to embarrass him the more in another.

"We all know," says Haeckel ("Sandalion," English translation, 1910, p. 19), "how tender the ape-mother is of her young. Yet Brass teaches us that it is exactly the selfless mother-love and mother-care that clearly distinguish man from all mammals and removes him far above the impulses and instincts of a beast."

As late as the summer of 1921 the prize female of the primate family, "Susie," a chimpanzee, of the Bronx Zoo, New York City, gave birth to a baby great ape which she starved to death by refusing to feed it. The phenomenon constituted such a good "news" story that it was "played up" by all the metropolitan dailies, which dignified this little episode of natural history with two-column headlines and half-tone pictures of the unnatural mother. "Bomba," father of the dead

chimpanzee, exhausted himself by racing about and screaming in the adjoining cage.

Perhaps among the most amazing declarations of Haeckel is his statement ("Sandalion," English translation, 1910, p. 20): "Every histologist, every student, every physician who has examined microscopically the human tissue and the tissue of other mammals knows that their coarser and finer structures, the morphologic and physiologic characteristics of their cells, are exactly the same. In sixty years, ever since thousands of accurate observations have been made of the structure of the epithelium, the glands, the cartilage, the bones, the plain and striated muscles, no one has succeeded in finding any histologic differences between man and the other animals. The same is true of the egg cell. Dr. Brass says the human egg cell is different from the ape's egg cell. He is the only one who had discovered that it is!"

Obviously Professor Haeckel knew nothing of the chromosomes which differ in number, size and shape to an astonishing extent in the cells of all animals of different species, ranging in some from less than ten to the cell to more than one hundred and forty-six. It is precisely such statements as these that have inspired the great William Bateson, to whom we shall shortly come, to make what is recognized by scientific men all over the world as the most careful, most accurate and most truly scientific summation of the bankruptcy of the evolutionary theory now obsessing the popular mind.

For an impatient commentary on the contradictions of Haeckel see "The World of Life," 1916, pp. 5-10, by Alfred Russell Wallace, who, though a champion of Darwinism, disposes of the foremost corruptor of Darwinism in six pages of deadly parallel from which in conclusion the following (pp. 7-8) is quoted: "The

writings of Haeckel, the extremely dogmatic and assertive character of which have been illustrated in the preceding quotations, have had an immense influence on many classes of readers, who, when a man becomes widely known as a great authority in any department of science, accept him as a safe guide in any other department on which he expresses his opinions. But the fact is that Haeckel has gone altogether out of his own department of biological knowledge, and even beyond the whole range of physical science, when he attempts to deal with problems involving infinity and eternity. To assert what Haeckel asserts is surely not SCIENCE, and very bad philosophy. We have no sympathy with his unfounded dogmatism of combined negation and omniscience, and more especially when this assumption of superior knowledge seems to be put forward to conceal his real ignorance of the nature of life itself. He evades altogether any attempt to solve the various difficult problems of nutrition, assimilation and growth. The causes and mechanism by which it comes about that the infinitely varied materials of which organisms are built up are always in the right place, and develop into cells at the right time, are never touched upon by Haeckel, who comes before us with what he claims to be a solution of the Riddles of the Universe."

Wallace, in his criticisms of Haeckel, does not exclude Huxley, though nowadays one never hears an echo of this almost forgotten truth. To read Wallace is to conceive a profound appreciation of the contradictions with which the "great masters" have, to use his own words, "concealed our real ignorance under a special term." The quoted phrase will be found in "The World of Life," p. 9. Again on page 400 of the same work Wallace exclaims: *"Professor Huxley used terms still more erroneous and misleading. It is the influence of such statements as these, repeated and*

even exaggerated in newspaper articles and reviews all over the country, that has led so many persons to fall back upon the teaching of Haeckel—that the universe had no designer or creator, but has always existed; and that the life pageant with all its pain and horror has been repeated cycle after cycle from eternity in the past, and will be repeated in similar cycles forever.''

Wallace not only explains what we choose to call ''pain'' among animals, but he says in answer to the question so puzzling to the materialist, Is Nature Cruel? No; a decided ''no.''

If Huxley could be tricked and deceived by Haeckel, or if he were disposed to be deceived, which makes matters even worse, what about the school children and the readers of the modern newspapers? Osborn is doubtless familiar with Professor Williamson's ''Primeval Vegetation.'' Williamson says (p. 200): ''Not only living but extinct animals have been appealed to. Professor Huxley has, with his wonted skilfulness, made use of the latter to buttress the geological side of the structure, which is confessedly its weakest one.''

It is not difficult to understand why educated men as well as children are disposed to accept these scientific fictions when most people would naturally suppose them to be based upon palæontological evidence, just as they would naturally suppose that Professor Osborn's exhibits are based upon the same kind of evidence. There is nothing in the Hall of the Age of Man which hints at the truth so graphically epitomized by M. de Quatrefages:

''Not one of the creatures in this pedigree has ever been seen. No skeleton or fossil of a single one of these creatures has ever been discovered. Their existence is based wholly on theory. To fill his gaps Haeckel invents the type as well as the line of descent to which

he assigns them. Whenever a branch or a twig is lacking on his genealogical tree, whenever the transit from one type to another would appear too abrupt, he invents species and groups bodily to which he unhesitatingly assigns a place. Is it not very singular that precisely that evidence must be supposed always to have perished which the evolution theory imperatively requires while so much evidence remains to contradict it?"

Why are the visitors of the Hall of the Age of Man denied the declaration of DuBois-Reymond ("Revue Scientifique," I, p. 1101): "Man's pedigree as drawn up by Haeckel is worth about as much as is that of Homer's heroes."

The Osborn Conundrums

In the Hall of the Age of Man where all is cut and dried, catalogued and interpreted, there isn't the remotest reference to a solitary fact among the scores assembled here. Will Professor Osborn explain this? Will he explain why the scientists, searching for a missing link, always find the fossils of isolated groups of genera and species, of which hundreds and hundreds have been recovered, whereas in no single instance has there ever been found a solitary trace of the indispensable, graduated series linking them together?

Will he explain why at every point the searchers for "missing links" stumble upon exactly those specimens which contradict the theory that he so zealously attempts to uphold?

The Lord St. Albans would say to some philosophers, "Gentlemen, Nature is a labyrinth in which the very haste you move with will make you lose your way."

Will Professor Osborn deny that the American Museum's Bulletin on the Evolution of the Horse discloses the hurried follies of the scientists who are so eager to have their opinions accepted that they must themselves confirm as "truth" that which remains unknown, and reject, because it does not fit into their picture, that which is known?

Will Professor Osborn deny that the American Museum makes a "perfect case" for evolution by its exhibit of the Evolution of the Horse?

Will he deny that this "perfect case" is based upon the assumption that the completed horse, as we now know it, did not exist during the earlier periods when its supposed ancestors were preparing the way for its modern début?

Will Professor Osborn deny that this assumption goes even further than this by assuming that none of the intermediate sub-horse creatures lived simultaneously with others more ancient still, which others must needs be described, therefore, by the phrase "Undiscovered Ancestors?"

Will Professor Osborn deny that this assumption rests solely and alone upon the absence of fossils of the "more highly developed" in the strata containing fossils of the "less highly developed"?

Will Professor Osborn deny that, to the same extent, no more, no less, it is sufficient to establish the non-existence of intermediate forms between ape and man in order to conclude, as the evolutionist concludes with respect to the horse, that, because no such intermediate forms are to be found, there never were any?

Professor Osborn must see the necessity of admitting that if the intermediate forms, the transition types, the missing links, or whatever else the pedigree manufacturers may see fit to call them, are not to be found, they never existed. It is precisely because the modern

horse IS NOT FOUND AMONG ITS SO-CALLED PREDECESSORS THAT THE EVOLUTIONISTS DECLARE WITH EMPHASIS THAT IT HAD NO EXISTENCE AT THAT TIME, wherefore it "was being prepared by evolution for subsequent existence."

Professor Osborn must also admit that the methods of the evolutionist must work consistently, or not at all, and that, therefore, precisely because the supposed link-forms are not found among fossil apes, the evolutionist must declare, as he declares with respect to the horse, that they had no existence.

They cannot resort to this sort of thing in support of one end of their theory and reject it when it proves embarrassing at the other end. Because it is embarrassing the evolutionists have had to create their hypothetical intermediate forms, their missing links, in order to maintain their assumption of gradual transition.

The writer again reminds Professor Osborn of the scientific candor of Mivart, when he said: "It is undeniable that there are instances which appeared at first to indicate a GRADUAL TRANSITION, which instances have been shown by further investigation and discovery not to indicate anything of the kind." See "Genesis of Species," p. 134.

Professor Osborn himself, in an address before the British Association, asserted that more than a hundred more or less complete skeletons of horses and horse-like animals have been found in North America, and that although he thought he had established the fact that horses were polyphyletic, there being four or five contemporary series in the Miocene, the direct origin of the Genus Equus in North America was not established with certainty.

Not only has it not been established with certainty, but it has been wholly disestablished. No less an au-

thority than Professor Sedgwick demonstrates that according to the evidence itself the horse actually appeared before some of its supposed ancestors. What, then, are the facts concerning the horse?

CHAPTER XIII

What Is a Horse?

Another "striking similarity"—Examining the horse—One toe evoluted off—Is a horse a horse?—Ruining the "demonstration"—"Impossible," said Darwin—Darwin's bewilderment.

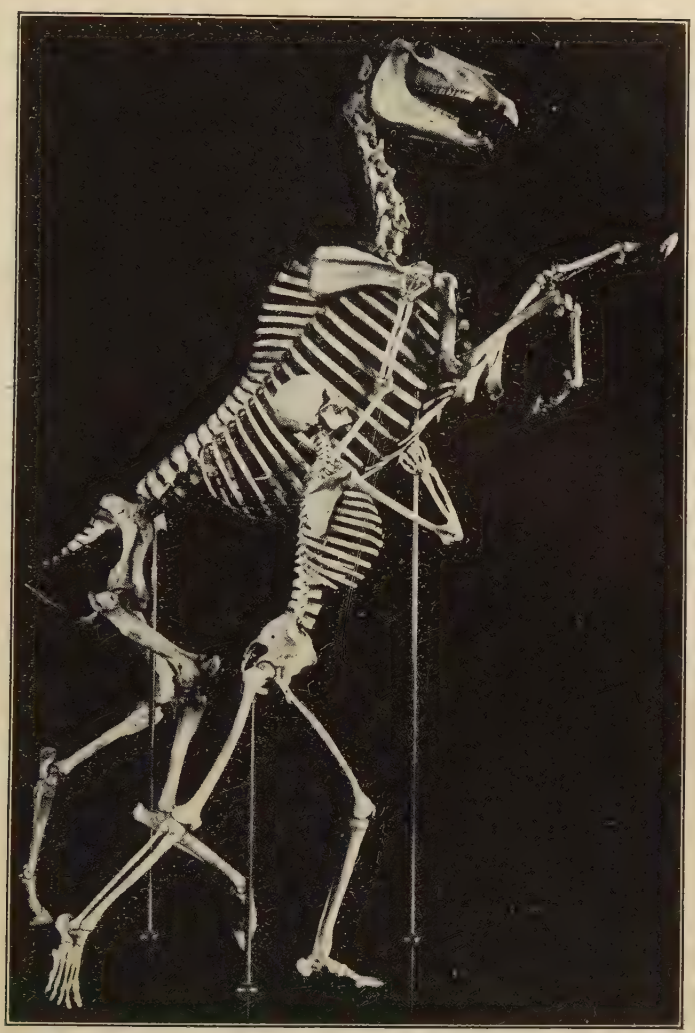
Referring to the skeleton of a man and a horse mounted under the direction of Professor Osborn in the American Museum of Natural History, Guide Leaflet No. 36, published April, 1921, says, p. 41: "A careful study will reveal a most striking similarity between horse and man in general structure, the differences being simply modifications of a common plan."

The most casual observer will not deny the extraordinary similarity. The rearing horse, standing almost upright, so vividly resembles the man in bony structure as to suggest an entirely new line of speculation. There is no monopoly of the ludicrous, no patent rights on the ridiculous! We are not now speaking of a resemblance between man and ape, but between man and horse!

Why did man not evolute from the horse? Except for the skull, which man's skull resembles as closely as it resembles the skull of the fox-nosed lemur, "his earliest known ancestor," the resemblance is so astonishing as to justify the words quoted from p. 41 of the guide leaflet.

The tail bones are missing in man, but the lemur had quite as much tail as the horse, and they say man began with the lemur.

Man has five toes and the horse has a hoof. But it's



Skeleton of horse and man compared. Bones of horse have been placed in artificial upright position. Note extraordinary "resemblances."

only the modern horse that has a hoof, one toe, on the nail of which it has learned to walk.

"The horse," says the guide leaflet, p. 9, "may be said to walk on its middle finger nail, all the other fingers having disappeared."

The modern horse's ancestors "had five toes and walked on all of them," just as man walks on his five toes today. So there's no difficulty there!

In the matter of "resemblances" between bones there are scores of "proofs" that man evoluted from the horse and not from the monkey. Moreover, those "proofs" are all at hand and require no such number of hypothetical missing links as are demanded by the man-ape theory.

In the first place the "most complete case" for evolution is the horse case, and upon its "solid foundations" the man-ape structure leans heavily. As reconstructed the "palpable plausibility" of the horse pedigree commands attention.

Let us examine it as presented by the same "scientific" authorities who have dramatized their "reconstruction" of the Trinil man-ape, the Neanderthal apeman and the Cro-Magnon human in the Hall of the Age of Man.

Examining the Horse

"The horse began 3,000,000 years ago in the Eocene. There are twelve main links connecting him with that remote epoch." The writer has examined the "proof" only to come away, not as so much submissive mutton but as an unbeliever and a scoffer. With an experience covering 207 prosecutions in criminal courts, supreme courts, federal district courts and all sorts of courts the writer has never seen such proof enter the records. Not only does it (bald opinion) never reach

cross-examination, but the judges strike it out instantly upon its appearance in direct examination.

They want no opinions of any kind. They want evidence, facts, proof, not "testimony," and they want corroboration!

Link No. 1 is called by a very awesome name. They have dubbed it Hyracotherium. They really didn't know how many toes it had because they could find only its skull, "so that it has not been determined exactly what the feet were like."

That word "exactly" has a familiar sound. It suggests a high degree of certainty. That the Hyracotherium, all bones missing but the skull, was the first horse is one of the "exact" steps in this evolution journey toward scientific certainty. We must not miss the significance of that word "exact."

Link No. 2 is called the Eohippus. The following exact quotations are lifted from the scientific literature published by the American Museum: "The Eohippus is much better known and is very like the Hyracotherium. The fore-foot has four complete toes. The hind-foot has three."

One Toe Evoluted Off

Already one toe has been evoluted off the fore-foot and two toes have disappeared from the hind-foot. "Undiscovered Ancestors" will doubtless be found some day with all five toes exactly where they belong. No, these two creatures "in the direct line of descent of the modern horse" (exact quotation from p. 15) were not as large as a horse. Surprising as it may seem, they were smaller than a squirrel!

Here again we have a few bones, "estimated to be 3,000,000 years old," of two animals smaller than a squirrel and, with a positiveness described as "scien-

tific," we are told they are the two first stages "in the direct line of descent of the modern horse."

Link No. 3 is called Orohippus, representing a period "about 1,000,000 years later," when the evolution was getting on quite well. The little Orohippus still has "four complete and usable toes in the fore- and three in the hind-foot."

It shows an animal the size of a small dog and proportioned much like the breed known as the whippet. Anyhow, as this animal was larger than the others and a million years younger it shows that the "horse" was growing some. He certainly had to! Was he not being chased by primitive dogs as big as bears?

Link No. 4 is given the name of Epihippus. Times have been getting on. He is now "1,500,000 years old" and has been evoluting finely during the million and a half years that preceded him. Resemblances are still as similar as ever, though still not quite as "striking" as the similarity between the man of today and the horse he is driving, if he happens to have a job on a milk wagon.

They have never found a skeleton of this fellow Epihippus, but fragments will do for the reconstructionists where evolution is in need of a prop or two. However, let us be exact and quote from the museum's own words:

"The toes are still four in the fore-foot and three in the hind-foot, but the central toe in each foot is becoming larger than the side toes." Plausibility is lending a hand or, should we not say, a hoof! That phrase "is becoming larger" is a vile phrase. Even Polonius would have said so, had his conversations with Hamlet touched upon other forms of evolution than such as were involved in the "resemblances" of yonder cloud to a camel, a weasel or a whale.

In that paragraph a hoof is certainly being fore-

shadowed. That central toe has got to be a hoof some day. The animal is about four feet long, the size of an Armour pig, but a million years later a regular horse with a hoof, one toe, the central toe, will look back over "its direct line of descent" and neigh for the feed-bag. Science reveals the first half. Your own eyes and ears supply the second.

At this point the "scientists" kick the great authority on evolution, Professor Huxley, right out of the picture. Perhaps they wouldn't have been so bold if Huxley himself hadn't authorized the act. The Palæotherium comes in with another creature called the Plagiolophus. One of these animals was a direct ancestor of the horse, according to Huxley. Now they admit Huxley was wrong. The critter was only a "collateral relative."

Anyhow, he was four feet long and his remains were dug out of a gypsum quarry at Montmartre (France), whence came that terrible fellow who managed to get in among the apes that evoluted into man a half million years ago.

Links Nos. 5, 6 and 7 are confessedly stumbling blocks. They are given two names, the Mesohippus and the Miohippus. The jump from Europe to America is no jump at all compared with all the other jumps of the evolutionist. Some of them, although 500,000 years further advanced along the exact and the direct line, have mysteriously shrunk and are now only "the size of a coyote." Others are "as large as a sheep."

But "the middle toe is now much larger than the side toes, which bear very little of the weight of the animal." The hoof is getting plausibly nearer, and that hoof is certainly an important matter, but not nearly so important as the spiritual, rational soul of man.

When they get to Link No. 8 they don't know what to do with Anchitherium and Hypohippus. The first

of these fellows has been found only in Europe and the second has given so much trouble, though found in Colorado, that they have had to admit he "is off the direct line of descent."

About as large as a Shetland pony, Professor Osborn considers him as adapted for a forest life and has named him the "three-toed forest horse."

"The restoration illustrates this supposed habitat and adaptation." Exactness has troubles on its hands, but is by no means nonplussed, for jumps are ever jumps, and long legs terminating in a sufficiency of toes make excellent jump-sticks.

So Links No. 8 and No. 9 are called the Parahippus. The teeth are more nearly like those of a horse and the side toes are quite small and off the ground. The time assigned to him, when he was here, is between 1,000,000 and 550,000 years ago. As for size? Naturally he'd be a bit bigger. Otherwise he'd have to go toward the foot of his class, where there are no hoofs.

Link No. 10 is called the Merychippus. They reconstruct him, as in so many of the other links, from "skulls, jaws and incomplete skeletons," but he does very well because "his side toes are slender and *no longer* reach the ground." The middle toe has got to be a hoof, you know, or there would be more resemblance between the Merychippus and man than between man and lemur. That phrase "no longer," though a bit worn and correspondingly fatigued, still renders valiant service.

Link No. 11 is a sort of trinity. There are three in one, the Hipparion from Europe and the Protohippus and the Pliohippus from America. They come along with Pithecanthropus Erectus a half million years ago, and though they have three toes they are getting closer to the Madison Square Garden horse show by ever so

much. Perhaps Pithecanthropus Erectus was their ring-master.

Professor Osborn calls the Hipparion "the three-toed desert horse." Protohippus and Pliohippus are rather inconsiderate, as they are not found in Europe, but then, for that matter, neither was Pithecanthropus, who was a Javanese fathered by a Dutchman. However, the direct line must leave something to the imagination or it wouldn't be "science." Even the wingless bird of New Zealand got there without wings, though how he did it nobody pretends to know.

Is a Horse a Horse?

Link No. 12 is called Pliohippus. This creature's bones were found in 1917. They say he is about 500,000 years old, but he has hoofs and is not the size of a squirrel or a cat or a dog or a coyote or a sheep. He is the size of a horse and has everything that a horse has, and is therefore "transitional from the three-toed to the one-toed stage." If a horse is a horse why not harness him and let him remain a horse? Why call him a Pliohippus?

He is a "tremendous discovery" even though for some unexplained reason "The Direct Line" would get along in America just as well without him as it does in the old world, where he is not found at all. If you think the fact is queer you must remember it is "scientific" and indulge it accordingly.

Curious as it may seem, the Old World horse has to content itself with Links Nos. 1, 2 and 11.

All the others have to be dispensed with somehow, and even the great scientist Huxley, who insisted upon fabricating Link No. 4 as a "direct ancestor," lived to see his fabrication defabricated. The best that could be said for his contribution was: It is only a "collat-

eral relative." Nevertheless the Huxley chain, though nine links shy, was quite "scientific" enough to edify the whole evolutionary world when it was needed to prop up the massive superstructure erected on those misbranded bones.

All this is disillusioning and disturbing, when regarded as "exact science," for the reason that Huxley in his "The Demonstrative Evidence of Evolution," says . . . "the general principles of the hypothesis of evolution lead to the conclusion that the horse must have been derived from some quadruped which possessed five complete digits on each foot. . . . Let us turn to the facts and see how far they fulfil these requirements of the doctrine of evolution."

What have we seen? A number of bones of animals of various sizes ranging from squirrel to cat, from cat to dog, from dog to coyote, from coyote to sheep, from sheep to large creatures. They exhibit a few points of superficial similarity to each other and a great many points of radical dissimilarity and, therefore, "must be stepping stones along the Direct Line of Descent leading to the horse." Thus the four-pound ancestor of the Eohippus becomes a two-thousand-pound horse just as the four-pound lemur becomes a two-hundred-pound man. Having set out to span the void what could the evolutionists do but span it?

And now, to repeat the words of the American Museum evolutionists, as "the conclusion is unavoidable that horse, rhinoceros and tapir, three races widely different today, are derived from a common ancestral type," and as "a careful study will reveal a most striking similarity between the horse and man in general structure, the differences being simply modifications of a common plan," there is something more than plausible in the theory that man's relationship to the lemur is less striking than his relationship to the rhinoceros.

The "undiscovered ancestors" of these creatures might well have been a pair of cooties. Haeckel says they were intestinal worms. You may take your choice. In doing so you will have the consolation of knowing that many eminent scientists have "proved" even stranger things than that. Rejecting God entirely, they worship not a golden calf but a self-certified opinion in which worms are the beginning and end of all.

Ruining the "Demonstration"

We have examined merely the assumptions, preconceptions, pre-opinions, clumsily hurdled gaps and contradictions. Now let us examine the annihilations.

In his "Essays on Controverted Questions," p. 450, Professor Huxley, urging the necessity of proofs for our beliefs, declared: "It is wrong for a man to say he is certain of the objective truth of any proposition unless he can produce evidence which logically justifies that certainty."

Because he termed the "perfect case" of the Horse DEMONSTRATIVE we appeal from any charge of brutality by reason of the application of his own formula of judgment.

In the DEMONSTRATION as in all other instances the one thing lacking, which is absolutely essential, is a single scrap of evidence of one species of so-called sub-horse gradually shading off into a higher sub-horse, and so on into the modern horse. Each creature we have seen is isolated from all the others.

As Professor John Gerard points out, they are farther apart from one another than the zebra and the donkey from the horse. Both zebra and donkey are classed in the GENUS Equus. They are farther apart than the Bengal tiger is from the pussycat at the fireside, yet the Bengal tiger and the pussycat both belong

to the GENUS Felis. If they were ever connected by a bridge there should certainly be some fossil trace of it.

Again it is odd that the scientists always find plenty of specimens of the things to be connected but never a single connection. Where is the demonstration? Where is the evidence? We have seen the utter and absolute lack of either and we also hear the echo of Professor Huxley's own words: "It is wrong for a man to say he is certain of the objective truth of any proposition unless he can produce evidence which logically justifies that certainty.

Professor Huxley foretold the coming discovery of Eohippus, and even described it. Professor Marsh foretold and described a still more remote ancestral form which, though it has never been found, has been given the name Hippops. See American *Journal of Science and Arts,* third series, vol. 43, p. 351. If either of them had any faith in their theory of evolution why did they both assume that some day we would stumble over one particular form "standing like a solitary outpost by itself and not upon any other trace of the stream of life whereof it was but a single transient phase?" Alas for the pretended certainty of either professor! The evidence, internal and external, is that neither truly believed that which both sought to make others believe.

The horse as we now know him, Equus caballus, is a native of the Old World introduced to America since the time of Columbus. Prior to that period all American horses had become extinct, yet the pedigree of Professor Huxley consists almost entirely of American animals. Every name ending in "hippus" is an American animal. No stretch of the imagination can describe them as the ancestors of the European horse. Yet—they were thus described!

Sir J. W. Dawson ("Modern Ideas of Evolution," p. 119), has diagnosed the infirmity of the "perfect case" in the following trenchant fashion:

"In America a series of horse-like animals has been selected, beginning with the Eohippus of the Eocene—an animal the size of a fox, and with four toes in front and three behind—and these have been marshalled as the ancestors of the fossil horses of America. . . . Yet all this is purely arbitrary, and dependent merely on a succession of genera more and more closely resembling the modern horse, being procurable from successive Tertiary deposits often widely separated in time and place. In Europe, on the other hand, the ancestry of the horse has been traced back to Palæotherium—an entirely different form—by just as likely indications, the truth being that as the group to which the horse belongs culminated in the early Tertiary times, the animal has too many imaginary ancestors.

"Both genealogies can scarcely be true, and there is no actual proof of either. The existing American horses, which are of European origin, are, according to the theory, descendants of Palæotherium, not of Eohippus; but if we had not known this on historical evidence, there would have been nothing to prevent us from tracing them to the latter animal. This simple consideration alone is sufficient to show that such genealogies are not of the nature of scientific evidence." Yet—such genealogies are driven through a whole series of gossamer-like premises into the rock-ribbed conclusions of "science."

If a comparison is made of the lines of ancestry favored by Professor Huxley, by the American Museum of Natural History, by Professor Mivart in "Types of Animal Life," p. 205, by Professor Lydekker in "Manual of Palæontology," ii., 1362, etc., we find that whereas Hipparion is here cut off from the

direct line of descent, he is there specified as "the immediate ancestor of the horse."

"Impossible," Said Darwin

In every one of the pedigrees the Old World and New World creatures are used indiscriminately and there is no agreement of any kind as to the earlier ancestry.

Professor Huxley regarded his pedigree of 1870 as "scientifically demonstrated," although it was totally different from his later and more highly renovated pedigree of 1876. In 1870 the ancestors of the horse consisted of Hipparion, Anchitherium and Plagiolophus. In 1876 Hipparion ceased to be an ancestor and Anchitherium was removed to make a place for Miohippus. The horse cannot be descended from both because the one existed in the Old World and the other in the New World. In its proper place the continent of Australia with its strangely stable Marsupials will have similar perplexing attention.

In the latest pedigree Plagiolophus has been ousted completely. Professor Darwin ("Origin of Species," Appleton, 1920, pp. 107-108) declared the Hipparion was subject to no dispute. "No one will deny," he wrote, "that the Hipparion is intermediate between the existing horse and certain older ungulate forms."

Yet Professor Huxley, zealous champion of Professor Darwin, had to deny precisely that. When the "perfect case" was made it was even thought that the Hippitheum had legs that terminated in claws. One species of Hippitheum was known only by a solitary tooth. Of the Hyracotherium only the skull had been found. Of Orohippus there were but fragments of jaws and teeth and a fore-foot. Of Epihippus "there were but incomplete specimens."

According to the evidence itself there was deterioration instead of advance in the evolution of the horse, for the Epihippus which came along "thousands of years" after the Protorohippus is very much smaller than its grandfather when it should be very much larger on its progressive way from a four-pounder to a creature weighing a ton.

The American Museum officials used to get around this difficulty by declaring ("The Evolution of the Horse," p. 16): "No doubt there were others of larger size living at the same time." No doubt anything, if anything is essential to the support of a theory.

Furthermore there is the remarkable circumstance that in the line of evolution culminating in the modern horse a parallel series of closely allied forms occurs in the Tertiaries of both Europe and North America, yet the American pedigree, which had to be entirely different from the European, ends equally in both continents with the Genus Equus, if not actually with Equus caballus.

The evolutionists make no effort to explain how two separate developments conducted along separate roads could thus be brought to meet in the same road house. Professor Darwin did not conceive it possible that the same species should be produced twice over, "if even the very same conditions of life, organic and inorganic, should recur." See ("The Origin of Species," Appleton, 1920, vol. 2, p. 92).

Darwin's Bewilderment

But take the last horse and assume that he really is lineally descended from the first ungulate, Eohippus. The ungulates include the rock-rabbit, elephant, peccary, tapir, mammoth, mastodon, rhinoceros, hippopotamus, giraffe, deer, moose, elk, antelope, camel, ox,

llama, sheep, goat, hog, buffalo, bison and yak. How is it to be assumed that this ungulate himself similarly developed from a non-ungulate mammalian ancestor? "To develop all these from one original," says Professor Gerard, "through a graduated series in each case by the infinitesimal process of descent with modification, would require a period of time inconceivably long —immensely longer than that required to change one ungulate into another.

"Ungulates are a highly specialized type of mammal and although they walk on the nails of five toes instead of on one hoof, a vast process of evolution would be required to bring them even to this point from which all mammals are said to have started. There must also have existed, while this development was in progress, a teeming and multitudinous mammalian life, as raw material for its operations—and of this at least SOME trace should remain."

Darwin voiced his own bewilderment in similar manner in vol. 2, chapter 10, "The Origin of Species," which can be summed up as follows: "The main cause of innumerable intermediate links (between different forms) not now occurring everywhere throughout nature, depends on the very process of natural selection, through which new varieties continually take the places of and supplant their parent-forms. But just in proportion as this process of extermination has acted on an enormous scale, so must the number of intermediate varieties, which have formerly existed, be truly enormous. Why, then, is not every geological formation and every stratum full of such intermediate links? Geology assuredly does not reveal any such finely graduated organic chain; and this, perhaps, is the most obvious and serious objection which can be urged against the theory." These are his concluding words: "I do not pretend that I should ever have sus-

pected how poor was the record in the BEST PRESERVED geological sections, had not the absence of innumerable transitional links pressed so hardly on my theory." (See vol. 2, p. 77.)

The impossible becomes still more impossible by reason of the fact that the first ungulates made their appearance upon earth quite as soon as did any other mammals from which they could possibly have sprung. Phenacodus is described as "the most primitive Eocene mammal yet discovered." He appears in the Lower Tertiary. The Secondary and Mesozoic rocks beneath are practically devoid of mammalian remains altogether, exhibiting only a few small Marsupials. Whence, then, came the huge and terrible beasts who were the Eocene contemporaries of Phenacodus? By what process of evolution did THEY spring instantaneously from other forms of which not a solitary trace exists amongst their own abundant skeletal remains?

It would be as reasonable to suppose that the Tyrannosaurs, the Dinosaurs and the Triceratops sprang instantaneously from some creature the size of a guinea pig as to plug this hole in the evolution of the horse or of man by a non-ungulate stop-gap.

CHAPTER XIV

Complications

Whale progressing backward—Wings, hands and feet—Increasing complications—Looking to De Vries—Wonderful variations.

It also complicates matters to learn that when placental mammals first made their appearance all over the world, at the beginning of the Eocene, the "ancestors" of the horse had a host of contemporaries of extreme diversity of structure, such, for instance, as the unguiculates, clawed animals allied to the hyena and the fox, gnawing rodents akin to the squirrel, also whales and bats. Yet—the necessities of evolution demand for all these "ancestors" of the horse, for all these unguiculates, rodents, whales and bats just as much transformation in radically opposite directions in their progressive ascent through unnumbered millions of years from some aboriginal ancestor.

Those early whales at the foot of the ladder should have advanced from lower to higher forms as demanded by the evolutionist's formula with respect to horse, man, etc.

Along the route of so many mile-posts marking the altogether astonishing stages of progressive change in the evolutionary pedigree of the horse it would stun the theorist, as if by a deadly blow, were he to discover that at the very time he was demanding and demonstrating so much progress for the horse, the whale was progressing not forward but—backward!

Sir J. W. Dawson ("Chain of Life," p. 222), says:

"The oldest of the whales are in their dentition more perfect than any of their successors, since their teeth are each implanted by two roots, and have serrated crowns, like those of the seals. The great Eocene whales of the South Atlantic which have these characters attained the length of seventy feet and are undoubtedly the first of the whales in rank as well as in time. This is, perhaps, one of the most difficult facts to explain on the theory of evolution."

They start you off back there with a little squirrel-like creature when the whale was a mammal seventy feet in length, more perfect according to the bewilderment of evolution than it is today, and they ask you to believe that the little squirrel-like creature was the father of the modern horse.

There were the Eocene Eohippus and the Eocene whale. The Eocene Eohippus they say has been coming up, up, up, under the irresistible and unyielding pressure of evolution and is now the horse. What, then, happened to that unyielding and irresistible pressure that it failed to carry along with it the Eocene whale which, instead of coming up, up, up, in comfortable accommodation to the indispensable requirements of evolution, has conducted itself, perhaps because it had flippers, with so much flippant indifference to the pre-opinions, pre-assumptions and pre-requisites of those who would have had it reverse its procedure?

They start you off with something very small as the progenitor of the Eocene Eohippus, but the Eocene Eohippus and the Eocene whale had a common ancestor. Why, therefore, was the progenitor of the little squirrel-like creature lagging along the line of evolution while the whale was attaining a length of seventy feet? Everything went forward very nicely with the little Eocene squirrel-like creature, yet we see that

something must have stopped altogether while its contemporary, the Eocene whale, was making such monstrous advance. But this is the very apex of paradox, for we see that the little Eocene squirrel-like creature didn't stop at all, but kept going right on, whereas the monstrous advance of its contemporary, the Eocene whale, is seen to be no advance of any kind whatsoever but in truth a sprag in the cogs of evolution.

Gaudray, "Les Enchaînements du Monde Animal," says: "We may question these strange and gigantic sovereigns of the Tertiary oceans as to their progenitors but they leave us without reply."

Wings, Hands and Feet

The bat, too, is quite as mysterious and upsetting as the melodrama of the same name which attained its climax as a producer of thrills and creeps in mid-season 1921.

Appearing at the same time as the "ancestors" of the horse it immediately flew over both hemispheres with wings fully developed. The evolutionists, while preferring to keep quiet on the subject, are nevertheless forced to admit an entire absence of any trace of intermediate form preceding the bat. Its wings are like our own human hands. That is why they had to start the first horse with five toes. The evolutionist sees modifications of the same structure in the paws of cats and dogs, the hoofs of horse and cattle, the flippers of whales and porpoises, etc., yet the foot of the ape is scarcely so much a foot as a HAND! "No human foot has ever been seen," says Professor Arthur Keith ("The Human Body," 1910, p. 77), "either in human fœtus or in primitive native races in which the great toe was separated like a thumb, as is the case in all apes." Yet we see in the hands of man the same bones

as are to be seen in the tortoise, and in the foot of man we see the same elements as in the foot of the lizard.

In order, by the slowly acquired accumulation of infinitesimal differences in gigantic periods of time, to develop the primitive generalized fore-limb from which all these diverse forms evolved, the bat before acquiring a wing capable of flight would have had to have countless hosts of ancestors, millions of them, and man should be not a descendant of the ape so much as a cross between a tortoise and a lizard.

Yet of all these not a solitary trace remains. Mivart ("Genesis of Species," p. 130) marvels over this abysmal gap in the theory of the evolutionist. "Whenever the remains of bats have been found," he says, "they have presented the exact type of existing forms." Why did evolution quit its job? Why did evolution go to the tortoise for a human hand and to the lizard for a human foot when the ape was ever so much nearer?

Sir J. W. Dawson ("Chain of Life," p. 227) adds to the confusion by asking: "Besides, if from the Eocene to the present (while the ancestors of the horse were undergoing such wonderful transformations) the bats have remained the same, how long would it take to develop an animal with ordinary feet, like those of a shrew, into a bat?"

How long, oh, Lord, how long?

But perhaps the bat is an exception among flying things? On the contrary, the same holds good of other flying creatures—birds, pterodactyles (flying lizards), etc. No trace of any of these creatures is found while their wings were in the making.

"Yet," says Mivart, "had such a slow mode of origin as Darwinians (and genetic evolutionists generally) contend for, operated exclusively in all cases, it is absolutely incredible that bats, birds and pterodac-

Courtesy Zoological Society.
Photograph by Edwin R. Sanborn.

Rear hand of Gorilla. Note well developed thumb, radically different in every detail from big toe of man.

tyles should have left the remains they have, and yet not a single relic be preserved in any one instance of any of these different forms of wing in their incipient and relatively imperfect functional condition."

The pedigree of the rattlesnake's family we cannot even imagine. Like so many other creatures they defy connection with the general body. "The number of forms," says Mivart, "represented by many individuals, YET BY NO TRANSITIONAL ONES, is so great that only two or three can be selected as examples. Thus those remarkable fossil reptiles, the Icthyosauria and Plesiosauria, extended, through the secondary period, probably over the great part of the globe. Yet no single transitional form has yet been met with in spite of the multitudinous individuals preserved. Again, with their modern representatives, the Cetacea (whales, dolphins and porpoises), one or two aberrant forms alone have been found, but no series of transitional ones indicating minutely the line of descent. This group of whales is a very marked one, and it is curious, on Darwinian principles, that so few instances tending to indicate its mode of origin should have presented themselves. Here, as in the bats, we might surely expect that some relics of unquestionably incipient stages of its development would have been left." And so with plants!

Increasing Complications

Professor W. C. Williamson ("Essays and Addresses," Owen's College, Manchester, p. 251) bewildered by the problems of primeval vegetation in their relation to the theory of evolution, writes: "If these generic types (of plants) first came before us in such clearly defined forms, when and where did the transitional states make their appearance?"

Our manuals of zoology and botany contain the names and descriptions of 400,000 living species of animals and 200,000 living species of plants. Why, if species have descended from other species by fine gradations, do we not see everywhere innumerable transitional forms? Why is not all nature in a muddled welter of confusion instead of the species being, as we see them, so sharply, so radically and so wonrously defined?

"Unfortunately, so far as the vegetable kingdom is concerned, we have as yet failed to discover any traces of these mysterious strata or hypothetical continents in which the transitions from one plant-type to another were being brought about. We have no evidence that unaided nature has produced a single new type during the historical period. We can only conclude that the wonderful outburst of genetic activity which characterized the Tertiary age was due to some unknown factor, which then operated with an energy to which the earth was a stranger, BOTH PREVIOUSLY AND SUBSEQUENTLY. This unexplained outburst of new life demands the recognition of some factor not hitherto admitted into the calculations of the evolutionist's school." They are determined not to recognize God, yet confess the necessity of recognizing some factor not hitherto admitted into their formula.

In the record of fossil fishes Professor Williamson notes the fact that amongst the very earliest representatives of this class, even in the upper Silurian, are found remains of sharks which he regards as the highest order of fish, and in the Devonian and Carboniferous above are found the remains of Ganoids, armorclad like the sturgeon. Yet nowhere below the chalk is found a single scale of Cycloids or Ctenoids, which as regards scale development, nervous system and re-

productive organs are far below the sharks instead of higher up on the evolutionary ladder.

Nor are these Cycloids or Ctenoids above the Ganoids, where they ought to be if the evolutionary theory is to be maintained. "To complicate matters still more," says Williamson, "the skeleton of Cycloids and Ctenoids is more highly organized than that of the others, and it is thus equally impossible to describe them as progressive or as retrogressive types."

All this positive evidence, all this negative evidence, all this lack of evidence of any kind should demonstrate the folly of the theory that the whole organic world originated in one primitive cell under an accidental chemic urge that has never repeated itself. Moreover, it should show the folly of the theory that the animal and vegetable kingdoms emerged from the same ancestral cell.

Looking to De Vries

This theory of the emergence of all animal and vegetable life from the same ancestral cell is called "monophyletic evolution," the chief objective of which is to dismiss God and His creative acts from the explanation of the origin of life. Hence the extraordinary demand for millions and millions of years in order to provide the limitless time periods essential to the working out of the millions of forms of vegetable and animal life on this planet. The contradictions involved in the tremendous groups of irreconcilable phenomena of which the few preceding instances are typical must be explained somehow.

Edwin Grant Conklin, professor of biology, Princeton University, attempts an explanation of these many curious difficulties when he says ("The Direction of Human Evolution," p. 19): "In all these paths of evolution progress is most rapid at first and it then

slows down until it stops . . . it may be compared to a flow of lava which rushes forward while it is at white heat and fresh out of the crater, but goes more and more slowly as it cools until it stops altogether; if the central stream remains fluid . . . it may burst out and again flow rapidly in one direction or another until it again cools and stops."

Struck by the amazing lack of uniformity in what is called "the rate of evolution," its proponents must look to De Vries for help. De Vries believed there were periods of rapid change alternating with periods of fixed stability in the history of species. Consequently we find the idea of "periodic advances or waves of evolution."

Everywhere we see stability persisting through "the millions of years" and yet one of evolution's most persistent demands is "progress in the sense of increasing complexity of organization."

Professor Conklin dismisses the difficulty by a paragraph, which when thoughtfully scrutinized must be a source of deep distress to many of his colleagues. He says (p. 21): "One need only recall the palæontological history of dinosaurs, elephants, camels, etc., to realize that, measured by geological time, organisms rather quickly reach the limit of their progress in any particular line. Diversities may continue to appear in all these types. Many new species have evolved (sic) and are still appearing (sic), there have been diversification and adaptation almost without limit, BUT PROGRESS IN THE SENSE OF INCREASING COMPLEXITY OF ORGANIZATION HAS PRACTICALLY COME TO AN END.

The significance of another admission of this modern Princeton professor is overwhelming. Announcing that one-celled organisms reached their utmost limits of complexity millions of years ago, he crosses

the stream of life and reviews the higher animals and plants in all their multiplication of cells, tissues, organs, systems, metameres, and zooids which, he says, p. 20, "enormously increased the possibilities of specialization within each of these larger units of organization, BUT FOR MILLIONS OF YEARS THERE HAS BEEN LITTLE FURTHER PROGRESS IN THIS DIRECTION OF MULTIPLICITY AND COMPLEXITY."

Whence, then, came man with his extraordinary complexity of organization? The answer is lost in those "millions of years," but even for man not a single one of the most extreme evolutionists has ever claimed millions of years. They can't ask for much more than 30,000 years for their Neanderthal men, and yet, although we have seen that the Neanderthal men are in every sense modern when compared with many whites and even high types when compared with modern blacks, they try to push the Neanderthals back far enough to get them into the class of "missing links." Stumped on all sides it is obvious that comparative anatomy, as judged by palæontological evidence, is the dead trunk of a branchless tree in the theory of man's descent from an ape.

Wonderful Variations

That the systematic species are indeed capable of beautiful and wonderful variations would seem to be fully demonstrated in numerous particulars. The seeds of the same plant sown on the hills and in the valleys result in all sorts of variations. The artificial introduction by hypodermic of microscopic organisms (germs) and the artificial manipulation of the food of the plant are quickly reflected in the external appearance.

An abundance of potassium in the soil leads to the development of stem, flowers and fruits or to what may be regarded as the maturing of the plants, whereas in the absence of potassium the growth of the leaves is more directly favored, the flowers and fruits remaining backward and immature.

Oats mature less fully and completely in the absence of silicon, thus establishing evidence of the aid of that mineral in the metabolism of the plant. The composition of the soil determines largely the character of the plant's development, exerting a vast influence upon the variety of the species, the different individuals of which are influenced accordingly.

It has been conclusively established that in the absence or through the deficiency of this or that food mineral others may be absorbed in unnatural proportions and combinations. Not only does the plant thus lose its natural immunity to disease by the breaking down of its normal resistance to invading organisms, but so also does the animal for the same reasons develop a tissue soil favorable to the growth of pathogenic bacteria and to structural modifications as well. One animal or plant may be dwarfed under the influence of alkaloids. Favorable soil may produce a giant species of plant from an average seed, and artificial stimulation of the glands may be followed by the elongation of the bones of man.

These influences, which the writer believes have a direct bearing upon the observations of Wasmann with respect to ants and their guests as well as upon the observations of De Vries with respect to the primrose, are extensively treated in "Science of Eating," George H. Doran Company, New York. In the Botanical Garden, Innsbruck, mountain and valley forms of the same mother plant (Brassica) are shown to visitors who marvel over their dissimilarity in appearance.

The observations of De Vries would seem to indicate instances in which considerable variation can suddenly appear. The reader is warned that the several pages following will be very dry for the reason that the subject is appallingly complex and so crowded with seemingly unreconcilable contradictions that the passing treatment accorded it here must take a great deal for granted, particularly a familiarity with the work of Morgan, with whose views the larger number of American biologists would seem to be in sympathy at present. It may well be that within a few years a great deal more will be known concerning genes, chromosomes, etc. As regards what is now known it would certainly be unscientific to base positive arguments for or against evolution. The whole sky of genetics is filled with rapidly moving clouds. However, as the Morgan investigations are going on, a clearer scientific vision in these matters may be looked for in the future.

The following fragments are not stressed; they are merely introduced in passing to more important and more fascinating "proofs" and disproofs.

In 1866 De Vries took nine well developed specimens of the evening primrose (Oenothera Lamarckiana), possessing great powers of fertility, and transplanted them from Hilversum, a town between Amsterdam and Utrecht, to his own garden in Amsterdam. Within seven generations he claimed to have produced from these nine single specimens about 50,000 plants, among which approximately 800 deviated from the original type. These sudden deviations from the parental type, with no ready-made explanation to account for them, were termed "mutations." The experiments of the Abbé Mendel, wholly ignored from 1865 to 1900, when they were suddenly "discovered" by Correns, De Vries and Tschermak simultaneously, seemed to show

that by crossing two races of plants differing in one or in several characters (peas, for instance, with different flowers or color of seed) new combinations can be formed according to mathematical laws, which, when care is taken to ensure self-fertilization, are constant.

The experiments seemed to render it probable that accidental qualities, size, color, length of life, etc., are connected with certain corporeal parts (genes) and maintain an independence in the organism. If, for instance, there be crossed a "Dwarf" race with a very "Large" race it may happen that all the progeny may be "Large" or all "Dwarf," according to whether the gene of the "Large" or the gene of the "Dwarf" becomes utilized.

CHAPTER XV

Chromosomes and Genes

Chromosomes and genes—Seeking gains—not losses.

The gene has come to mean in the modern study of heredity inspired by Mendel those certain characters or factors that are definite, separable "units" capable of distribution and redistribution in various ways, but always in such a particular way as to retain their own individual peculiarities. It is generally assumed that the distribution of the gene follows in general the laws of Mendelism, but a Mendelian character may not always be an obvious character. What seems to be a "unit" in its external manifestation may be made up of many Mendelian units. The whole subject is exceedingly complex and would not be lugged into this discussion were it not for those De Vriesian primroses.

It is held that once genetic analysis has led us to the recognition of a strictly "unit" character it becomes evident that such a character must be one of a pair of characters, only one of which goes to a certain germ cell, the other to another germ cell, following strictly the distribution of the two members of a pair of chromosomes. The chromosomes have inspired many volumes. Among the latest which the student may see are "The Cell," 1919, by Edmund B. Wilson, and "Life and Death, Heredity and Evolution in Unicellular Organisms," by H. S. Jennings, 1920. Neither Darwin nor Haeckel ever suspected the existence of the chro-

mosomes which every student of biology may now examine under the microscope for himself.

"Each parent," says Jennings, p. 170, "hands on bodily to the offspring, through the germ cells, certain packets of chemicals. Since these are directly transmitted from parent to offspring, while the later characters are secondarily derived from them, we may call these packets of chemicals the primary hereditary characters. These packets are present in each animal in a certain definite number, stored within the nucleus; they are called chromosomes. Individuals which get different sets of packets from their parents develop differently even under the same outer conditions; that is, they show different hereditary characteristics."

This is believed to explain how it happens that the offspring of the two members of a pair may resemble each other on the whole, yet are hereditarily diverse.

At any rate the pairs of characters of which the strictly "unit" character must be one are called allelomorphs. When two similar allelomorphs are found in the same germ cell, one derived from the mother the other from the father, the offspring will possess them both and be influenced accordingly, whereas when the two allelomorphs are not similar the offspring will be influenced in another direction.

Thus in the shifting and reshifting of these allelomorphs in successive generations, and even in the same generation of different individuals, any given pair of allelomorphs may not result in the same character in all the different individuals containing them. On the contrary, one or more of such characters may be replaced by others. Moreover, the various pairs of allelomorphs of any individual may become separated in its offspring so that certain genes formerly associated in one individual are no longer found together in others.

Thus the chromosome which is said to contain the

genes may break, and the two or more parts broken off may unite with the corresponding parts of another broken chromosome. The chromosomes are thus conceived to be linear bodies in which the materials representing the genes are arranged in a well-established order in a series so that the whole may be pictured as a long tube containing an assorted package of biochemic substances, each destined to be activated at some point of time in the life history of the individual.

In the matter of variation the differences between individuals are thus explained as being due to different genes. Hence when a character appears in the offspring that was not visible in its parent it is described as the coming to light of something that was hidden in the parent, for which reason such newly appearing characters are in reality not new, but attributable to a genetic constitution of long standing. Luther Burbank has discovered that to get a new and pleasing odor it may often be sufficient simply to lose one bad element in an old odor. This brings in the complications between natural selection and artificial selection.

Artificial selection selects exceptional, most widely divergent characters which appear only in a few individuals, whereas natural selection is a selection of slight differences appearing simultaneously in many individuals. Artificial selection often leads to morbid or exaggerated development, to a sickly disposition, to an undermining of the whole constitution, whereas natural selection effects no injury to the whole constitution but on the contrary strengthens and betters it. Artificial selection results in lack of stability. Natural selection remains constant.

"In the light of this truth," says Morgan ("Evolution and Adaptation," 1903) "the relation between the two selective theories may appear quite different from the interpretation that Darwin gives it. We may well

doubt whether nature does select so much better than does man and whether she has ever made new species in this way." Taking a strong stand against natural selection as a species-forming factor and in favor of definite variations (De Vriesian mutations) Morgan (*Pop. Sci. Mo.*, May, 1905, pp. 54-65) says: "They, the selectionists, have never hesitated to take each particular character of an animal or plant, and dress it up in more perfect garment, while the body of the species, if I may so speak, has been left as it was before. There has been a continual tampering with the characters of the organisms with the laudable intention of doing with them that which nature herself seems unable to do, namely, to dissociate them from the rest of the organization and perfect them in this way or in that. *It is this meddling with the fluctuating characters of the species that has been the characteristic procedure of the Darwinians, in their attempt to show how new species have been created.* New forms on the Darwinian theory are supposed to be created by a process of picking out of individual differences. If, in addition to this, Darwin supposed that at times varieties and species crowd each other out nothing new is thereby created."

Here the biometrician and the Mendelist part company. The biometrician says: "Selection is the process of accumulating infinitesimal differences through gigantic periods of time." The Mendelist says: "Selection is a process of combining and sorting out genes." The biometrician says: "Selection is creative, actually producing new characters." The Mendelist says: "Selection merely assorts, and such effects of variation as are sometimes said to be found are merely due to new combinations of characters that were already present."

De Vries himself says ("Darwin and Modern Science," p. 70): "Natural selection acts as a sieve; it

does not single out the best variations but it simply destroys the larger number of those which are from some cause or another, unfit for their present environment. In this way it keeps the strains up to the required standard, and in special circumstances may even improve them."

Back in 1590 an apothecary of Heidelberg, one Herr Springer, was convinced that there had suddenly appeared in his garden a plant called Chelidonian laciniatum, a mutation from Chelidonian majus. Upon this case and the case of the Sherley poppy, together with his own series of evening primrose cases, De Vries relied in giving to the world what he regarded as "instances of evolution actually evolving." The odd thing about these instances is that they should be so extraordinarily complicated and so astoundingly rare.

They are like "the instance of evolution actually evolving" in the case of a butcher giving rise to a Shakespeare, a true and a very rare "mutation," as sudden and unexpected as it was typically De Vriesian.

It is not at all clear that the Oenothera on which De Vries elaborated his theory is really a "unit" type. It is probably a hybrid, in which case the forms noted by De Vries would merely represent a process of disintegration or splitting up of the hybrid into its original types, possibly along Mendelian lines.

Seeking Gains—Not Losses

Like all the other "demonstrations," this case, so rare, is terrifically complicated. Many scientists stress their belief that most "mutations" are due to the loss of one or more of the characters of the wild type. These "retrogressive mutations," as De Vries himself characterizes them, follow Mendel's law of heredity. But science is not looking for losses along the path of

evolution. On the contrary science insists she is looking for gains, additions.

It is for this reason that so many scientists are reluctant to admit that characters which look like additions in domesticated or cultivated forms are really due to the LOSS of something which in the past has prevented the appearance of the hidden factor. Out of the confusion one thing is certain. By exhibiting a discontinuous method of evolution in actual operation they completely smash the Darwinian theory of infinitesimal steps over gigantic periods of time. No more did they look for the breakdown of the Darwinian theory at their own hands than they now look for the breakdown of the De Vries theory.

The chief criticism of De Vries' views is directed against his knowledge of the material with which he worked. Mendelism demands, as an all-important factor, that we know the genetic constitution of the organisms under analysis. De Vries was never able to give an adequate analysis of his primroses, and there are many lines of evidence that render doubtful his general conclusions and especially his concept of a "mutation." Hybrids, regularly, give rise to a series of aberrant forms, some types of which are frequently repeated while different types are produced in different proportions. In other respects Oenothera Lamarckiana shows characteristics that have become associated with hybrids. In some of its mutants the pollen is non-functioning; many of the ovules are abortive; many of the fertilized seeds themselves do not develop; there is a high rate of mortality even among those which do develop.

On this point Kellogg ("Darwinism Today," 1907, p. 368) is extremely skeptical. "As a matter of fact," he says, "the Lamarckian primrose seems to be practically extinct as a wild species. De Vries found speci-

mens in three botanical collections in the United States. These specimens were collected in Florida and Kentucky. However, since these specimens were taken the species has not been observed, perhaps on account of lack of close observation, perhaps because it has actually disappeared. Therefore the question whether the Lamarckian primrose mutates in wild condition remains undecided."

Alas, it is too bad indeed that such an important plant, seemingly like no other plant in all the world, should have been so ignored, neglected, and forgotten that now, when so much depends on it, it has disappeared and is nowhere to be found.

"Klebs, the eminent plant physiologist," says Kellogg, "keenly criticizes the mutation theory. Copeland finds in the mutations of De Vries nothing radically different either in character or behavior from the Darwinian fluctuating variations." (See "Darwinism Today," 1907, pp. 372-373). Having abandoned Darwin and come to De Vries, there would thus seem to be a desire to return to Darwin. On this point Kellogg is clear and emphatic. He says, under the caption, "The Deathbed of Darwinism," in the introduction to "Darwinism Today," 1907: " . . . Numerous books and papers are appearing now in such numbers and from such a variety of reputable sources as to reveal the existence among biologists and philosophers of a widespread belief in the marked weakening, at least, if not serious indisposition of Darwinism. A few of these books and papers from scientific sources even suggest that their writers see shadows of a deathbed.

"There is something very seriously to be heeded in this chorus of criticism and protest, and wholly to stop one's ears to these criticisms is to refuse enlightenment and to show prejudice."

The remarkable fact has now been established that

every species of plant or animal has a fixed and characteristic number of chromosomes. In many of the lower animals the number of chromosomes to the cell has been determined positively. With respect to man the number is now thought to be twenty-four. Wieman (1917) asserts that the number in both negro and white spermatogonia is twenty-four, thereby agreeing with Duesberg's (1906) count.

Various investigators, Bardeleden, 1892, Fleming, 1897, Willcox, 1900, Duesberg, 1906, Farmer, Moore and Walker, 1906, Moore and Arnold, 1906, Guyer, 1910, Montgomery, 1912, Gutherz, 1912, Winnawater, 1912, Wieman, 1913 and 1917, arrive at different counts through the difficulty involved in examining the cell. However, what is now positively known with respect to many simpler forms warrants the conclusions that the number of chromosomes in the cells of any individual of any species is, with few exceptions, constant. Thus in some of the sharks the number is thirty-six; in certain gasteropods it is thirty-two; in the mouse, the salamander, the trout, the lily, it is twenty-four; in the worm, sagitta, it is eighteen; in the ox and guinea pig it appears to be sixteen; in the onion it is sixteen; in the grasshopper it is twelve; in certain of the nematodes it is eight.

The number persists through all the cells of the body; thus the skin cells, tissue cells, liver cells, and all the other cells of man would contain the same number. At this point a remarkable fact occurs. The number in all the species is reduced one-half during the maturation of the ova and spermatozoa so that the mature ova and spermatozoa possess just half as many chromosomes as the other cells of the body. When the maternal half is united with the paternal half the full number is thus restored to the cell of the offspring. Thus it would appear that the chromosomes are the

bearers of factors in heredity. "We have thus," says Edmond B. Wilson ("The Cell," 1919, p. 208), "what must be reckoned as more than a possibility that every cell in the body of the child may receive from each parent not only half of its chromatin substance but one-half of its chromosomes as distinct and individual descendants of those of the parents.

Into what new world, the very existence of which has never been suspected, these facts may lead no one knows. "The results of genetic research," says Bateson ("Methods and Scope of Genetics," 1908, p. 46), "are so bewilderingly novel that we need time and an exhaustive study of their inter-relation before we can hope to see them in proper value and perspective. From a survey of these materials we see something of the changes which will have to be made in the orthodox edifice (of evolution) to admit of their incorporation, but he must be rash indeed who would now attempt a comprehensive reconstruction."

At this writing, 1921, no scientist may foretell what a contrasted examination of the chromosomes of the chimpanzee, gorilla, orang, gibbon and man will reveal, yet the old dogmatic certitude of the evolutionists, who have heeded none of the bewildering complexities involved in this study, persists, as if it were indeed a thing upon which the freakish Trinil Ape-Man, Piltdown Ape-Man and Neanderthal Ape-Man might look with profound contempt.

The chromosome of the ant cell, for instance, may eventually reveal something of the permanence of the species. "W. M. Wheeler," says Jacques Loeb ("The Organism as a Whole," 1916, p. 43), "in his investigations of the ants enclosed in amber was able to identify some of them with forms living today, though the ants observed in the amber must have been 2,000,000 years old. The constancy of species, i.e., the permanence of

specificity, may therefore be considered as established as far back as two, or possibly three, hundred millions of years. The definiteness and the constancy of each species must be determined by something equally definite and constant in the ape, since in the latter the species is already fixed irrevocably."

Loeb goes on to show that species are generally incompatible with each other and that any attempt at fusing or mixing them by grafting or cross-fertilization is futile. These are hard words for the evolutionist, coming, as they do, from the Rockefeller Institute for Medical Research, and they need more clearing up than is seemingly now possible. There may or may not be any significance in the pairing of the maternal and paternal chromosomes; in the functioning of the so-called genes; in the definite composition of the egg cells and the sperm cells before they are ready for the production of a new individual, yet it would seem to be obvious to all scientists that not until a comparative study of the chromosomes of man and ape is undertaken can there be any, even remote, justification for the continuance of the man-ape theory.

Loeb gives the following definite number of chromosomes: Man (probably) twenty-four; mouse, twenty; snail, twenty-two; potato, beetle, eighteen; cotton, twenty-eight; four o'clock, sixteen; corn, twenty; night shade, thirty-six; tobacco, twenty-four; tomato, twelve; wheat, eight. Obviously the number twenty in the case of corn and mouse would not indicate that corn and mouse are members of the same species or that the number twenty-four in the case of man and tobacco indicates that man and tobacco are members of the same species. Not only the number but the character, individuality, composition, form and conduct of the chromosomes must be studied if the evolutionist is to substitute fact for opinion.

It can be said without reservation that all the work done during the last generation in experimental biology, including all its divisions, can be described as positively not establishing the FACT of evolution, even though there can be no rational hostility against evolution in the sense of universal growth and development.

One might as well deny the development of the human fœtus. The whole problem of evolution is to determine how much in nature must be referred to a direct creative interference and how much may be left to accidental or evolutional causes. But—the work of the last generation has accurately defined the terms heretofore loosely employed in describing certain phenomena that formerly resulted in no end of confusion and misunderstanding. Through the work of Morgan and those associated with him we have obtained an insight into the mysteries of heredity. We have a new concept of the mechanism of variation and certainly it can be said that we know the possibilities and the limitations of natural selection.

That the problem, an unfathomed universe of problems, still confronting the true scientist should be presented to an untrained and unsuspecting public as having been solved, settled, catalogued, cut and dried, and that man's descent from an ape has been established is all the more inexplicable when one begins to observe that the "scientists" who thus misrepresent the truth are seemingly immune to public criticism, on the part of the very scientists who are consecrating their lives to a sincere, a tireless and a noble effort in search of data free from taint.

We have natural selection demanding sexual selection, a theory that has completely broken down; continuous variation; discontinuous variation; fluctuating variation; Galton's law of regression; Delage against Delboeuf; Pfeffer against Darwin; Wolff and Weis-

mann on degeneration of parts; De Vries against Darwin; Morgan in favor of De Vries; Taylor in favor of Darwin; Plate in favor of the inheritance of acquired characters, and against Weismann's principle of germinal selection; Cope with his proof that natural selection cannot make new characters; Roux against natural selection and Plate against Roux; the encasement theory; the micromeric theory; Buffon's theory; Spencer's theory; Nageli's theory; Hatschek's theory; Le Dantec's chemic theory; Verworn's biogen hypothesis; neo-vitalism; Lamarckism; orthogenesis; orthoselection; the theory of metakinesis; Batesonism; Mendelism; Davenportism; Osbornism.

Of course we might expect to hear Kellogg exclaim: "But I do not know, nor in the present state of our knowledge does anyone know, nor will anyone know until, as Brooks says of another problem, we find out. We are ignorant; terribly, immensely ignorant. And our work is to learn." He does not say that our work is to present opinions as facts. He does not say that the presentation of a progressive series of apes, apemen and men is a desideratum of science. He refers to Osborn but not to Osborn's monkey men.

Courtesy Zoological Society.
Photograph by Edwin R. Sanborn.

Head of Orang. Compare ear with ear of gorilla for astonishing difference in size not explained by evolutionists. Note superiority of brow. The supra-orbital ridges said to be a proof of man's descent from the anthropoid apes are conspicuous by their absence, although many white men possess them to a marked degree.

CHAPTER XVI

Bateson—A Brilliant Light

Bateson—a brilliant light—What's the matter with us?—Confusion and darkness—The Standfuss butterflies—Ants and their guests.

For a surgically clean, a scientifically unbiassed and a profoundly humble confession of the bankruptcy of the too long popular theory of evolution the reader is referred to the great William Bateson, whose unchallenged conclusions will be found in "*Science,*" August 28, 1914, pp. 289-325. Scientific men have ever been confused by the descent of a Shakespeare from a butcher. They are puzzled by the fact that the father of Beethoven was a confirmed drunkard and his mother a consumptive. That the father of the incomparable Caruso was a mechanic who detested music would ordinarily make the evolutionist pause in his extravagant generalizations. Bewildered by the problems of heredity, William Bateson, acknowledged by all modern scientists to be the foremost living authority on genetics, says in the paper above referred to: "Not only does embryology give no direct aid but the failure of cytology (the study of cell organisms) is equally complete. The chromosomes of nearly related creatures may be utterly different in number, size and form. If we cannot see how a fowl by its egg and its sperm gives rise to a chicken or how a sweet pea from its ovule or its pollen grain produces another sweet pea we at least can watch the system by which the differences between the various kinds of fowl or between the vari-

ous kinds of sweet pea are distributed among the offspring. . . . Until Mendel began this analysis nothing but the vaguest answers to such a question had been attempted. THE EXISTENCE OF ANY ORDERLY SYSTEM OF DESCENT (denied by Haeckel) WAS NEVER EVEN SUSPECTED."

It was the custom of the ape-man evolutionists and of all the other evolutionists to stress the argument of "blood." Blood was looked upon as a fluid that might be diluted so that in the veins of a man might flow seven-eighths white blood and one-eighth negro blood, or four-eighths of each. Says Bateson: "Misconception was especially brought in describing descent in terms of blood. Truer notions of genetic physiology are given by the Hebrew expression 'seed.' If we speak of a man as of the 'blood royal' we think at once of plebeian dilution, but if we say he is 'of the seed of Abraham' we feel something of the permanence and indestructibility of that germ which can be divided and scattered among all nations, but remains recognizable in type and characteristics after four thousand years. An organism cannot pass on to offspring a factor which it did not itself receive in fertilization."

Alas, by what violence of imagination are we to trace man's inheritance of the art faculty, the metaphysical faculty, the faculty of wit and humor, the faculty of scientific investigation, to the seed of an ape or of any other lower animal, without the intervention of God?

On this point Bateson makes a feeble effort to conceal his impatience by exclaiming: "Darwin speaks no more with philosophical authority. We read his scheme of evolution as we would those of Lucretius or of Lamarck. Naturalists may still be found expounding teleological systems (the science of organic adaptations) which would have delighted Dr. Pangloss him-

self, but at the present time few are misled. . . . Almost the last shred of that teleological fustian with which Victorian philosophers loved to clothe the theory of evolution is destroyed. . . . As a chief characteristic of modern evolutionary thought we must confess to deep but irksome humility in the presence of great vital problems. Every theory of evolution must be such as to accord with the facts of physics and chemistry, a primary necessity to which our predecessors paid small heed. Of the physics and chemistry of life we know next to nothing. Living things are found by a simple experiment to have powers undreamed of, and who knows what may be behind?"

One is stirred deeply by the lofty intellectual integrity of Bateson, who, despite his eminence as a scientist, stands with bowed head, ashamed of the unfounded and unsupportable generalizations of so many of his evolutionary colleagues. With the utmost solemnity he declares: "Knowledge of heredity has so reacted on our conceptions of variation that very competent men are even denying that variation in the old sense is a genuine occurrence at all. Do we, as a matter of fact, find in the world about us variations occurring of such a kind as to warrant faith in a contemporary progressive evolution?"

The text books on biology and zoology now in the hands of the students of high schools, colleges and universities throughout the United States, many of them containing half-tone reproductions of the Osborn apemen busts, are positive and emphatic in teaching this "scientific truth." Boards of Education must be shocked by Bateson's answer to his own question. He says: "Till lately most of us would have said 'yes' without misgiving. The appearance of contemporary variation proves to be an illusion. We have done with the notion that Darwin came to favor, that large differ-

ence can arise by accumulation of small differences."

Referring to Lotsy's contempt for the ideas now flourishing in the departments of zoology and botany, Bateson contributes another shock to the smug assurance of the generalizers of evolutionary theories. These are his words: "After the blind complacency of conventional evolutionists it is refreshing to meet so frank an acknowledgment of the hardness of the problem. Lotsy's utterance will at least do something to expose the artificiality of systematic zoology and botany. . . . The problem still stands outside the realm of scientific investigation, and when we hear that the spontaneous formation of formaldehyde is a possible first step in the origin of life we think of Harry Lauder in the character of a Glasgow school boy pulling out his treasures from his pocket—'That's a wassher for makkin' motor cars!' "

What's the Matter with Us?

Summing up the results of all the scientific labors since the epoch-making discoveries of Gregor Mendel he (Bateson) dismisses the childish conceptions of evolutionary dogma in a few carefully considered words: "Modern research lends not the smallest encouragement or sanction to the view that gradual evolution occurs by the transformation of masses of individuals, though that fancy has fixed itself on popular imagination." And Professor Osborn, Mr. Wells, et al., keep it going.

We are living in an age of intellectual pride which takes as little heed of its futile vanities as of its paradoxical pursuit of gross humiliations. Few of us stop to consider that it was not the brain of the average fallen man that has given us the printing press, the cotton gin, the smelter and the anvil, the engine and the

dynamo, the telegraph and the telephone, the trans-Atlantic liner and the aeroplane, the microscope and the telescope. We employ these majestic discoveries as if they were our own; as if they had not been given to us by a comparatively few geniuses standing as solitary luminaries above and beyond the average mass of fallen humanity. The poet Longfellow must have had some such thought in mind when, referring to the Mother of Christ, he penned the line, "Our tainted nature's solitary boast."

How prone we are to boast of "our" enlightenment. Have "we" not conquered the elements; have "we" not harnessed the lightning; have "we" not turned thundering Niagara into funnels, sweeping her mighty energies through turbines into factory and rail; have "we" not analyzed motion, throwing its broken parts upon a screen; have "we" not exposed the mechanism of flight, the bursting of the bud, the scavening drive of anti-bodies; have "we" not caught the human voice, compelling it to dwell in a disc until released from its prison at our own bidding; have "we" not tracked to death invisible organisms that destroyed millions of our fore-fathers; have "we" not discovered the bacillus of typhoid (1879), the bacillus of tuberculosis (1882), the vibrio of Asiatic cholera (1883), the bacilli of lock-jaw and diphtheria (1884), the bacillus of bubonic plague (1894); have "we" not developed a system of antiseptic and aseptic surgery, even though there are hundreds of millions who never heard of Pasteur, Lister, Koch; have "we" not taken Jules Verne at his word by voyaging twenty thousand times twenty thousand leagues under the sea and in the air; with no intervening wire have "we" not flashed communications from shore to shore; have "we" not compelled the soil to yield its secrets and from the bowels of the earth have "we" not mobilized the forces of radium; have

"we" not smashed the atom; have "we" not made war an abyss of horror; have "we" who have done these things not proved to ourselves how wonderfully "we" have advanced from the stage-coach days of our grandfathers? Alas, poor fools, we are being dragged behind a chariot. When it stops we stop. When it speeds on we speed on. The reins are in the hands of the charioteer, not in ours. As individuals we are helpless in progress or resistance. As individuals we receive, accept and apply without thought that which a few pioneers have given to the millions who do the boasting.

The great Bateson has made the thought his own and the majestic quality of his attitude toward truth, regardless of its consequences, is revealed in a sentence: "But for a few thousand such pioneers as Newton and Pasteur, inconceivably rare, the rest of us should be in the Palæolithic era, knowing nothing of metals, writing, arithmetic, weaving nor pottery." To all the scientists of the world, but to none of the pseudo-scientists whose chief glory is the ostentation of learning badly borrowed, the voice of Bateson is the voice of a seraph.

Confusion and Darkness

By this time the student through his examination of facts and contradictions has probably arrived at the conclusion that the whole doctrine of evolution has been directed into lanes of confusion and darkness by reason of its vain assumption that its object was to explain the origin of life upon this planet. To attain progress along this deliberately selected route it was forced to espouse the assumption of a monophyletic evolution of the whole kingdom of organic life from a single cell which sprang into existence through some

never repeated phenomenon of spontaneous generation.

Thus at the very beginning of its monophyletic assumptions it was obliged with its eyes wide open to push a problem largely philosophical entirely into the laboratory of the zoologist and palæontologist. With all his apparatus, retorts, test tubes, crucibles, acids, alkalies and reagents the chemist specializing in metallurgy would be wholly at a loss with such equipment to deal with problems of bacteriology.

The botanist would find the instruments of the civil engineer of no avail whatsoever in the study of his subject. Philosophy, the very highest of the sciences, yields to the solvents of zoology and palæontology no more than does the diamond to vinegar and water.

Consequently in the fabrication of results essential from the very start, if the monophyletic theory was to attract attention, it became necessary to formulate hypothesis after hypothesis so that in the multiplicity of assumptions which thus sprang into existence the old ones began to be looked upon as "established facts" as the new ones were being born. In this manner it became the habit to draw conclusions from premises which though dignified by popular recognition had existence only in fancy.

The Standfuss Butterflies

Even De Vries (who believed he had found new forms of the Oenothera which appeared to behave like real species) was shown the folly of hasty conclusions through the numerous experiments of Standfuss in breeding butterflies. These experiments shook the very foundation of the theory of mutation by indicating that mutation has little significance, if any at all, as a factor in the formation of species. Standfuss himself was

compelled to conclude that it is impossible for species to be formed by fluctuating variations. The net result of his extraordinary experiments took the shape of an opinion that the only really important variations of species are those modifications caused by definite external influences, which modifications, described as "adaptive variations," are transmitted to succeeding generations.

On this subject the authoritative work of Erich Wasmann with respect to ants, white ants and their guests or parasites is of tremendous interest in that it provides considerable evidence in support of the altogether reasonable and correspondingly beautiful theory of polyphyletic evolution upheld by such scientists as Von Wettstein among the botanists, and Steinmann, Koken and Diener among the palæontologists.

Polyphyletic evolution, instead of getting back to an accident resulting in a single stock from which the myriads of modern living creatures in the animal and vegetable kingdoms have descended, begins with numerous stocks expressly created by God and controlled as to their variations by the operation of fixed laws revealing plan and purpose.

Ants and Their Guests

The parasites or guests which accommodate themselves to the life of ants and white ants (termites) may have developed through such accommodation into new species, genera and families. Wasmann asserts, and he is not speaking as a theologian but as a scientist, although in addition to his rôle as Europe's foremost scientific authority on insects he is also a Catholic priest:

"In some cases (Thaumatoxena) the characteristic marks have been so completely altered by accommoda-

tion that it is scarcely possible for us to determine to which order of insects this strange creature belongs."

Even Wasmann, predisposed as he is toward the phenomena of accommodation or polyphyletic evolution, is not without his own tendency to draw conclusions from facts that are by no means conclusive. He says, for instance ("The Hypothesis and Theory of Evolution in Natural Science," p. 10): "There are hundreds of kinds of ants, which we know through their having been preserved to us in the Tertiary amber of the Baltic and Sicily. Amongst them occur several genera which still exist, but scarcely a species that is identical with the present ones. We can hardly avoid coming to the conclusion that our ants are the descendants of these fossil varieties, and that they have come into being by way of natural evolution of the race, and not by way of a new creation."

It would appear that Wasmann assumes that the fossil ants preserved in the Tertiary amber of the Baltic and Sicily represent the parent stock of the modern ants, though it is altogether possible, according to Wasmann's own conclusions in other matters, that these Tertiary amber ants, even though they comprise several genera which still exist, did not comprise all the genera then existing.

It will be admitted that the Tertiary amber of the Baltic and Sicily constitute localized, not generalized, deposits of fossil ants. However, we may here have a confusion of terms with respect to the significance attached to Wasmann's identification of "new systematic varieties." For instance, he describes the conduct of species of the genus Doryloxenus (a parasite) which in comparatively recent times in the East Indies have ceased to live with the ants, becoming guests of the Termites, thus being changed into new systematic varieties.

CHAPTER XVII

Psychical Activity

Psychical activity—Evolution and music.

Nevertheless the phenomena observed by Wasmann have caused him to define evolution as comprising "the chemical and physical properties of the organic elements and the original mechanical constellations of living atoms, as ordained by the Creator at the production of the primitive type. From these constellations arise certain definite tendencies of evolution, which may be further influenced by the reciprocal action of other groups of atoms. Natural science compels us to assume certain formal principles, which are not makeshifts meddling with material energy, nor do they disturb the permanence of the law of energy; they simply direct the lower energy, quicken to life the atoms hitherto dead by absorbing them into the organism and, in short, effect THE PURPOSE of the vital processes by action from within. This postulate is eminently reasonable—I personally cannot dispense with it, and should not be able to dispense with it, even if theology did not exist.

"We cannot dispense with the assumption that beasts possess some psychical activity, but how far does it go? Only as far as the sphere of the senses extends. On the intellectual side the whole psychical activity of beasts is limited to sense perception, to the connection of such perceptions with one another, to memory, and to the modification of earlier forms of

activity in accordance with sense experience. This psychical activity brings into action the inborn tendencies and directs them suitably to perform the vital function. A beast possessing these faculties is plainly not a machine, but still it does not enjoy intellectual life.

"It may be boldly stated that much confusion as to the meaning of the expression 'intellectual life' has been caused by Büchner and Brehm and other leaders of popular psychology. All our sense perceptions taken collectively are regarded as constituting intellectual life, although they do nothing of the kind.

"In the sense in which the expression occurs in ancient philosophy, intellectual life is only that form of activity which we describe as 'higher,' viz., the exercise of human thought and human will. What characterizes human thought is the fact that man possesses the power to form concepts, and to deduce from them general conclusions, and to raise himself by the aid of his reason above all particular phenomena. On this power depend all the art, science, and religion of mankind, which are not found among beasts, although there are some trifling resemblances to them, which have been exaggerated until they amount to real equality. If we wish to be consistent, we shall require to have a special principle underlying this intellectual activity, which distinguishes man above all the rest of nature, and this principle must be a simple, intellectual being. This soul is not, however, shut up in the human body as in a prison, but with the human body it forms one complete being and substance; hence, in addition to the higher intellectual faculties, it possesses others belonging to the senses, which correspond to those of beasts. In man the one soul is capable of all the activities which a beast can exercise, but in addition it raises itself to the higher functions of the will and intellect,

and thus it towers above the sphere of animal life. It is because of this essential superiority of man, in respect of his spiritual activity, to what is animal and material, that we are forced to assume the existence of a simple, spiritual soul in man, a soul which continues to exist after death, although it can obviously no longer exercise its lower functions, when once it is separated from the body."

But, according to the latest theories of the materialistic evolutionist, as announced at the Second International Congress of Eugenics, American Museum of Natural History, New York City, September, 1921, it is not the soul that distinguishes man from the ape, but rather a physical difference brought about by the action of the endocrine glands, the secretions of which are responsible for the development of man from the ape. Dr. Charles B. Davenport, director of the Eugenics Record Office, says that all crimes and all moods are produced by various chemicals called hormones, which are manufactured by the different glands and poured into the blood stream which carries them to the different organs, including the brain, where they produce profound bodily and mental effects. Professor L. Bolk, director of the Department of Anatomy in the University of Amsterdam, concurs with Dr. Davenport and carries the theory further by declaring that the endocrine system of glands not only controls the architecture of the body, but directs the growth of every cell. He suggests that millions of years ago a change began in the chemistry of one of the varieties of anthropoid ape. This change prolonged its period of growth from birth to maturity and brought about many other changes in its structure. Under the operation and influence of these changes the ape advanced so far beyond the simian stage as to be classified as human and became man.

According to this theory the alterations in gland chemistry which transformed the ape into man were brought about by the change from a fruit diet to a meat diet. All the other apes remained vegetarians except the man-ape, consequently all the other apes remained apes except the man-ape, which, by eating flesh and drinking blood, became human. The first change in man's ape ancestor, according to Professor Bolk, was the suppression of his hairy covering. Then came the activity of the suprarenal body to which the white man is indebted for his uncolored skin. The massive protruding jaw bones and the beetling penthouse brows of the ape were shaped into human characters by the retarding action of the pituitary body on bone growth. This action is also responsible, asserts Professor Bolk, for the small and delicate hands and feet of man as compared with the huge anthropoid extremities. The thymus gland is credited with the difference between the ape's skull and the human skull. It is this gland which makes man superior to woman and which, therefore, should reconcile woman to a condition of marked inferiority from which she may never hope to emerge unless some biological catastrophe occurs to muffle down the thymus gland of the male.

"If retardation of the developmental processes be the fundament of human evolution," says Bolk ("The Lancet," September 10, 1921) "then that sex has attained the highest level of human evolution in which this retardation is most pronounced and without doubt this is the case with the masculine sex." *Obviously there is no biological hope for woman, and she may look forward to a gradual return to the chattel status which once shackled her to the whims of man.*

Speaking on the subject of the change of diet which caused the endocrine glands to elaborate a species of ape into mankind, Professor Bolk says: "I consider

this to be the adaptation of man to animal foods. All other primates are herbivorous or frugivorous. Only man has accustomed himself to an omnivorous existence. This must thoroughly have changed his metabolism. The whole endocrine system functions as a unit. All its organs are physiologically associated with each other, and the effect of this association is an equilibrium. Now, in each organism this equilibrium is in harmony with the chemical structure of the food, of the material which must be assimilated. If this material is exclusively or principally vegetable, the endocrine system must function in a somewhat different manner than when the material submitted to its regulating power is of animal origin. Therefore, by a transition from a vegetable to an omnivorous diet the regulation of the metabolic processes must be modified."

This is not a new idea, as we shall see, when shortly we shall return for a moment to the "Soulless Thing," the "Chemic Creed," and the inspiration of Robert Blatchford. Perhaps it may explain the dog cemeteries and cat cemeteries in which beloved canines and felines are buried with becoming honors and solemn ceremonies beneath monuments inscribed in terms of love and sorrow. Dogs and cats have been fed from man's table for many generations. Some of them eat the cream of the wheat, lamb chops, remnants of salads, left-overs of beef stew, and all the other scraps of made dishes that remain unconsumed as the guests retire from the dining room to the conservatory for their demi-tasse. Dogs, cats, wolves, hyenas, lions, tigers, vultures and other carnivorous creatures have been eating meat for thousands of years, and doubtless in time will more fully develop the distinctively human factors which even now, due to a meat diet, must be well advanced, though unobtrusively so, on their way to the human stage.

Courtesy Zoological Society.
Photograph by Edwin R. Sanborn.

Exceptional view of chimpanzee's "foot." Note sensitive spread of "big toe" and "thumb." The beast is quite ready to listen to the strains of "Home, Sweet Home" but there are no organs at the zoo.

Possibly it is the recognition of this affinity between owner and pet that has inspired the setting apart of canine and feline graveyards. The whole subject is delightful, suggesting, as it does, that when Old Dog Tray bays the moon at midnight or when Tabby Cat purrs tunefully at the fireside, these manifestations of musical tendencies revert to a diet of meat. Thus are the secrets of existence torn one by one from the darkness in which they have slumbered these millions of years. *Not to the seed of an ape, but to a chunk of raw meat, is to be attributed the music faculty of man's soul.*

Evolution and Music

It would be difficult following William Bateson's dictum, "An organism cannot pass on to its offspring a factor which it did not itself receive in fertilization," to attribute the music faculty of man's soul to the seed of an ape. Music, like all the arts, has no nationality. Even the Gemans during the war produced Shakespeare in Berlin and sang Schumann's Two Grenadiers, despite the heart in it which was French—the Marseillaise. Music is like the elements. It humbles one's racial animosities and numbs one's religious prejudices. As there is no Russian sunlight, no American shadow, no British hydrogen, no Italian oxygen, no French poetry, there is no German music. Music belongs to all and, like the elements, defies monopoly. The Jew Mendelssohn had scarcely stolen the Spring Song from the void when the Gentiles were whistling its melody on the streets. The evolutionist who says there are no miracles is confounded by the miracle of music and made dumb by speculation concerning its origin.

How comes it that melody pours in from nothingness before it finds its way on paper to the strings and voices that pass it on? Where did that One Furtive

Tear reside before it burst upon the soul of Donezetti? The naturalist tells us that the fragrance of the rose creeps into the bud with the esters and aldehydes elaborated in the humus with which the soil is mixed, and that the ethereal flavor of the peach is merely fragrance captured. The odor of blossoms rides upon the wind, free as the wind itself, and though we may describe it with something like a chemical symbol, and though our naturalists may draw distinctions between the physiological and ethereal, their explanations as to the origin of odor are as vague as their conclusions concerning the origin of species. They admit that melody floats in from nowhere, yet is something; that it is not a phantom, though it springs from nothingness into being. Less tangible, more impalpable than the interstellar spaces, music is none the less so real a thing that it is talked about, extolled, pondered over. So baffling, so awesome, so wonderful is the theme that the scholar has as much difficulty in expressing the conflict of emotions which it provokes as have little children in giving it a definition.

Children instinctively associate music with angels, and millions of older folk find themselves utterly helpless to exclude God from their consciousness when a melting song lays its touch upon the soul. True enough there may be no manifestation of the miraculous when the invisible becomes visible, as the breath of an ox on a winter day, but no explanation avails to account for the golden threads of melody spun from the void where sound is never heard and matter has no existence. Even to the materialist melody becomes a taper glowing with miraculous fire, thrusting doubt into the shadows and sweeping the barren wastes of objectiveless existence with flashes of the Infinite. We may say that melody is wine, that the chalices pouring it are formless, that the wine itself is less than air, less than ether,

less than thought, but we are at a loss to plot the abode of these immaterial flickerings of immortality before they visit earth.

Science can be ransacked and all the arts of deduction exhausted for a satisfactory explanation of the relentless and resistless phenomenon embodied in song. When welters of symphonic waves submerge and all but drown one in pain too sweet to be described as torment, is there not awakened in the soul a new hunger, a new yearning for that which has stirred one's whole being to the core? Out of the abundance and the satiation does there not come the consciousness that man has an objective far beyond the limits marked by the stirring of his emotions? Does he not begin to see, to know, without the ability to demonstrate his knowledge, that he is indeed immortal; that nothing can or ever will satisfy the infinite hunger of his faculties except the Infinite? Is not music one of the most innocent of all man's earthly pleasures, and yet the most compelling? It is not the one passion that never degrades, the one intake that never fills, the one output that never exhausts? Witness the sorrow of the world when Caruso's golden voice was hushed in death.

CHAPTER XVIII

The Mason-Bee

The Mason-bee—Not a gleam of intelligence—The plan!

The clash between monophyletic evolution on the one hand, with its rejection of God, and polyphyletic variation on the other with its fixed laws, plan and purpose, merely serves to emphasize the vagueness and uncertainty of the materialist's extravagant speculations and to show the loss of an objective worthy of the pursuit of rational man.

Polyphyletic variation demonstrates this plan, pursues this purpose, obeys laws imposed by a Law-Giver and bridges every gap on the brink of which monophyletic evolution is compelled to pause while it horsewhips its fancy to the formulation of imaginary missing links without which it cannot go on.

The materialist encounters in the bee an insurmountable obstacle which would be no obstacle at all if the Creator were not rejected.

This obstacle, gripping in its fascination, discloses the confusion growing out of the blind instinct of animals and the reasoning intelligence of man.

Science itself proves that blind instinct always follows a fixed law. Rational intelligence is free to choose. Upon this choice free will, distinguishing man from brute, stands like a rock which the materialist cannot batter down.

The materialist grants the bee a history of millions of years on this planet for the reason that it is com-

paratively low in the line of descent from the "primordial single cell." Monophyletic evolution demands acceptance of the theory that the bee was evolved from a lower organism which neither made honey nor built a hive, notwithstanding the fact that the one distinguishing characteristic of the bee is that it is the only creature in nature that does both, though no explanation of its instinct as a honey gatherer and hive builder has ever been offered. The old stand-by of the evolutionist "acquired by habit" completely fails. Even Darwin surrenders unconditionally on this point. He actually asserts ("The Origin of Species," Appleton, 1920, vol. 1, p. 321): "It can be clearly shown that the most wonderful instincts with which we are acquainted, namely those of the hive bee, could not possibly have been acquired by habit."

Most startling are the scientific proofs that by instinct the bee builds its hive, and by instinct it extracts nectar from the flowers. In none of the problems put up to the bee by human interference is it capable of exercising a reasoning intelligence to protect itself from the follies it is forced to commit when the course of its "most wonderful" but wholly blind instinct is arbitrarily altered by man.

The French entomologist, J. Henri Fabre, concludes from his experiments that this blind instinct of the bee is absolutely unprogressive, absolutely limited in its range, absolutely fixed and unchanging, as is the law of gravitation.

Fabre made a hole in the cell of the Mason-bee while she was building the cell. She stopped to repair the hole. He made many holes. As long as her instinct directed her building operations she plugged them all. With the completion of the cell her instinct directed her to gather nectar with which to provision it. Fabre made another hole in the bottom of the cell. The bee

was now engaged in provisioning, not in building. She observed the hole, but went on with her provisioning, letting the honey ooze through.

Once the provisioning begins the cell is finished for good and all and, come what may, the bee will not touch it again. To plug the hole would imply a change of occupation, of which the bee is incapable. It is the honey's turn, and not the mortar's.

"A moment comes," says Fabre ("The Mason-Bees," p. 177), "when the cell must be raised a story higher. Will the bee, once more a mason, mixing fresh cement, now attend to the leakage at the bottom? No more than before."

What occupies her now is the new floor which she repairs at once if it sustains a damage; but the cell underneath is too old a part of the business; it is ancient history. The bee will not put a further touch to it.

Fabre stuck a bit of straw an inch long into the cell, so that the straw stood out above the rim. By great effort the bee extracted it. He repeated his performance and the bee repeated hers.

Finally, with the completion of the cell, the egg-laying period began. The egg was laid. Again the straw was put into the cell with the egg to interfere with the growth of the baby bee. Before the laying of the egg the bee persisted in removing all straws, but after the egg was laid she followed blindly the instinct of sealing up the cell, which she proceeded to do with the straw sticking up over the top nearly a centimeter (.39 inch).

She then flew forth for more building material with which to strengthen the cover of the cell.

Eight cells were trifled with in this fashion. The bee sealed them all with the utmost care. She was incapable of doing, after the laying of the egg, what her instinct compelled her to do before that period of her activities had arrived.

Fabre sees in all this nothing but an invincible persistence in the act, once begun. Exquisite attention was paid to closing up the cell which was henceforth useless. No matter that the larva would perish; the moment had come after the laying of the egg to wall up the door, and the door was walled up.

Again Fabre drained away the honey, from some cells in part, from others wholly. When the time came for the bee to lay her eggs she laid them, whether there was honey in the cell or not. She was following blind instinct. She could not judge of the quantity of honey by the elevation of the surface. Had she the least glimmer of reason she would not lay her egg in a cell drained of the nourishment without which the baby bee would starve. Her instinct was as true as the movement of the planets until subjected to the wiles of the experimenter, after which she became a dunce.

Not a Gleam of Intelligence

The Mason-bee, when hatched and nourished by the honey provided in its cradle, will follow its blind instinct, pierce the dome of its cell and emerge. Fabre put a bit of thin brown paper-covering a little distance over the dome. The bee's instinct directed it to pierce the dome. Having done that, it was through. The bit of paper was more easily pierced, but the bee had no instinct for piercing paper in order to get out into the world, so it proceeded to perish for lack of the smallest gleam of intelligence.

Much has been written about the "singular intelligence" of the bee. It has been compared to human reason just as the intelligence of dogs, seals, and other animals has been compared to human reason, as if upon the brains of some of them, learning their tricks, the human intelligence of the teacher had not been imposed.

The very science which compares the blind instinct of the bee to the germ of human reason invites a return of the old-fashioned notion of a reasoning human soul derived from no brute, but made in the image and likeness of God.

The bee builds the hive with wonderful art, rigidly limited to the building of a hive. Its hive displays real architectural skill—the minimum of material with the maximum of capacity. To plan such a structure reasoning man would have to work out a difficult mathematical problem. He would have to have a plan. The bee never makes a plan. It merely builds. But without a plan it would waste much building material and build in vain.

In the building of the Woolworth Tower rational man had a plan and a fixed purpose. With all his reason, if he had attempted the structure without a plan he would have spoiled much material and wasted great effort. Man forms his own plan. Who forms the plan of the bee?

The materialist assures us that instinct is "acquired habit" and the instruments with which it works have been evolved by pure chance, wherefore he declares that he has established a foundation for scientific atheism. Yet even the untrained observer detects the strained quality of these theories of chance evolution. He notes that acquired habits vary, but that instinct never varies. From the beginning the bee bequeaths its instinct to its offspring. The bee is a skilled builder from the start. Man cannot bequeath his architectural skill in such fashion to his son. By slow process the builder must learn his trade and the artist the principles of his art. The bee does all instantaneously.

The Plan!

Where does the bee get its plan? Not from itself, for it hasn't a gleam of intelligence. If it had such intelligence, capable of making a plan of its hive, it could make other plans as well. If it could plan at all it could plan to save its honey from the robbers who steal it every season. But it neither plans, nor does it learn the art of building. It builds by instinct on a plan already provided. Unlike man, it can do no good or evil of its own free choice.

Who, then, planned the bee's hive and implanted the building instinct? Science does not deny that every bee since the first has carried out this plan, just as the builders carried out the architect's plan for the Woolworth Tower. But whence came the bee in the first place? Was it hatched from a bee egg, the germ of another bee, according to the law of biogenesis—"every living organism from a germ of its kind"—never an oak from an apple seed or a fig tree from an acorn?

If the specific law is that each species comes from the germ of its own species, every bee since the first has been hatched from the egg of a pre-existing bee. Whence came the first pre-existing bee? Like begets like. We get no bee, except from the egg of another bee. But perhaps the bee came millions of years ago from the egg of another insect. This is skulking away from the difficulty, which becomes at once more perplexing than before. Science admits that the bee couldn't have come from the crossing of two insects of different species. Hybrid forms among animals are sterile. The bee is fertile and certainly no hybrid. It possesses the twofold faculty of honey-making and hive-building. Even though we follow Darwin's formula, these faculties could never have been separate. Darwin's infinitesimal steps in gigantic periods of time

must pause on the spot. The purpose of the hive is to store honey and hatch more bees. If the first bee issued from the mating of insects that neither collected nectar nor built hives, where was the cell to hatch the egg, and where was the nectar to feed the baby bee? The bee is never hatched, save in a cell, and cannot grow unless fed with honey. *Whence came the first cell and the first honey without a pre-existing bee capable of building the former and gathering the latter?* Even in the case of certain varieties of the wild bee the mother bee is the primary cause of the formation of the cell around the young bee, similar to the cocoon of the silkworm.

The chance evolutionist suggests a low form of pre-existing honey-gatherers and a low form of pre-existing cell-makers as the ancestors of the bee. But if this be true, the first product of the chance evolution must have been equipped with an apparatus for gathering honey and a plan for making cells. The bee couldn't have acquired this apparatus SLOWLY. It couldn't have developed its tools and its skill SLOWLY for the reason that its offspring could have survived no such delay.

How could the new-born infant of a mother who had not yet developed mammary glands survive the delay of ages until chance evolution might succeed in developing mammals capable of suckling their young? How were the offspring of the ancestors of man nourished at the breast before the development of the breast? Darwin himself says ("The Origin of Species," vol. I, chap. vii): "The mammary glands are common to the whole class of mammals and ARE INDISPENSABLE for their existence."

But Darwin himself also says that the mammals have descended from the marsupials, and instantly we have a new set of complications in which the opossum,

the kangaroo and the turkey become the most bewildering riddles of the chance evolutionist's scheme. Since Darwin's time no evolutionist has attempted to explain how, by chance evolution, the offspring could have survived the millions of years which are said to separate the marsupial from the mammal while the latter was evolving from the former, or, in other words, until the mammary glands of the mother could be developed beyond the pouch stage.

All theories of chance evolution repudiate plan, purpose and definite intention, yet the sting of the bee is certainly an organ of definite intention. The ova-positor of the grasshopper, through which its eggs are planted deeply in bark or earth, is certainly another organ of definite intention. The cuttlefish possesses two organs of definite intention. With one it clouds the water when in danger, thus enabling it to escape; the other consists of a system of snaps, like those on gloves, with which it buckles on its outer skin at the throat.

On the theory that special organs, designed for a particular use, were developed ever so slowly before the time came when they might be used, it would be necessary for birds, evolving from reptiles, to acquire feathers gradually through thousands and thousands of generations before such feathers could be used for flight, and, of course, during all this period of development there would have had to be another and equally marvelous co-ordination of development in the direction of flying bones and flying muscles, and a still more marvelous co-ordination, all by chance, whereby the center of gravity of the bird would fall within the limits of flight.

Had there been no definite intention, no purpose, no plan in such a system of evolution, we are at once confronted by such a marvelous series of complex co-ordin-

ations, each species presenting an entirely different set of wonders, that we are compelled to look upon chance in a spirit of awe and admiration similar to, if not identical with, the spirit that inspires the worship of the creature for the Creator.

If indeed it be not reasonable to do violence to reason, is it unreasonable to yield to the demands of reason by admitting that a Creator overcame the inscrutable difficulties involved in all theories of chance evolution by such acts, for instance, as the creation of Mother Eve, with breasts fully formed and capable from the very beginning of sustaining her offspring, our ancestors? Polyphyletic evolution, seeking to account for the origin of the bee and the human breast, throws itself upon God.

CHAPTER XIX

Evolution in a Muddle

Man alone makes progress.

As in other animals, with instincts as astonishing as are those of the bee, sure, swift and certain within their own narrow sphere, but blind and impotent outside of that sphere, these blind instincts, as far as science can now see, merely serve to keep the species in the straight and narrow grooves assigned to them in nature. According to Lyell, from 65 to 80 per cent. of the species of shellfish found in the pliocene beds for which an age of millions of years is demanded, are identical with those now existing. Such stumbling blocks must be reckoned with in the search for "certainty." They at least serve to disclose the incalculable vastness of the reaches which the finite intelligence of man presumes with magnificent daring to explore.

Evolutionary theories, from the very beginning, have never ceased to caution each other against the vanities of assurance. They are forever engaged in the task of rearranging the fragments, of reassigning the fossils and of reclassifying the data from which they draw their inferences and counter inferences. They know no certainty. The opossum, kangaroo and turkey make their bewilderment all the more bewildering. These three creatures, like so many other four-footed and two-footed animals, are as conservative as the ape. *One would think they were always opposed to progress as they are opposed to progress now. One would think*

that through them nature halts the advance of evolution, as in the case of the bat, the whale, the ant and scores of other creatures, so that the more deeply the truth-seeker probes, the more depth he may find beneath him.

Take the opossum, for instance. The first relics of this curious creature were found in Paris, at Montmartre. Its living representatives, so well known in America, are really not known at all, for as far as the general public is concerned they constitute a zoological island which has never been explored. The tail of the opossum is covered with scales like the tail of a rat, but, unlike the tail of a rat, it is prehensile, resembling the tail of the American monkey. Not every American monkey has a prehensile tail, but no monkey which is not American has a prehensile tail. The prehensile tail is capable of curling its own end so firmly round the branch of a tree that the creature's body can be safely suspended by it as if by a fifth and powerful hand. The female is provided with a pouch in which the young, after birth, are nourished. All the toes are equipped with claws, except the inner toe of the hind foot, which is not only clawless, but which acts like a thumb. In the front of the jaws are ten small teeth above and eight small teeth below, with seven grinders on each side at the rear, including one more wisdom tooth than is possessed by any ape, not excepting the American ape.

It is as skilful in climbing trees as the spider-monkey. Its habit of carrying its young in a pouch and the hand-like formation of its hind paw are but two of the novelties which, with eloquent significance, inspire the evolutionist to avoid all discussion of the animal.

St. George Mivart, F.R.S., who greatly distressed Charles Darwin, observes ("Types of Animal Life," Boston, 1893, p. 39): "Little did the first observer of

the opossum imagine that the difference between a bat and a mouse or the difference between a porpoise and a sheep was as nothing compared with the difference between the opossum and any other beast known in Europe or America." Of course evolution demands that other creatures more or less allied to the opossum must be elsewhere discovered. What about the females of the Australian marsupials which, like the American opossum, are provided with the pouch, and which are all distinguished by the possession of two bones, called the "marsupial bones" extending forward in the flesh of the belly from the front margin of the pelvis to which the hind legs are articulated? The Tasmanian wolf is the one exception to this. It possesses this marsupial structure not in the condition of bone but as two pieces of cartilage. The possession of these marsupial bones or cartilages, with other curious characters, separates the creatures possessing them by a tremendous abyss from all other animals. Their reproductive functions cause them (the Australian beasts and the opossum of America) to be classed as marsupials to distinguish them from the beasts on the other side of the abyss classified as placentals.

According to the doctrine of evolution, all existing species are the descendants of common ancestors from the structure of which they diverge in various degrees. Here are two parallel series of beasts. Were they all at first marsupials? Are the placentals, rodents, cats, weasels, wolves, moles, deer, antelopes, sloths, etc., the modified offspring and descendants of the marsupials, kangaroos, opossums, etc?

If this be so, it becomes absolutely necessary that a number of very similar structures must be affirmed to have arisen independently, agreeing to branch off in one direction as placentals while holding fast in the

other direction to their antecedent and wholly separate marsupial forms.

Or did all the placentals descend from some one marsupial species, or did all marsupials descend from some one non-marsupial form? Accepting the latter theory, it again becomes necessary to affirm that a number of very similar structures must have arisen independently. The opossum thus suggests the independent origin of similar structures upon a continent which has nothing in common with Australia, so singularly celebrated by its curious marsupial forms.

The second and third toes of the kangaroo are bound together, but the toes of the American opossum are as well developed as the toes of any beast. Either the American opossum is specially connected by blood relationship to the Australian kangaroo or it is not. If they are related their resemblances are not due to descent from a common ancestor but consist of similar characters which must have arisen independently. If they are not related then not only the similar but also extremely exceptional characters of the foot must have arisen independently.

Of course beasts differ as to the number of their toes. The horse, ass and zebra alone have a single toe for each foot. Sheep, oxen and deer have two toes on each foot. The chaeropus, which looks like a miniature kangaroo, less than twelve inches in length from the tip of the nose to the root of the tail, has six toes. Its fore-limbs are supported on two toes each, although its hind-limbs rest upon one toe only. Then there is the myrmecobius discovered by Lieut. Dale in western Australia. In flight it looks very like a squirrel. The female has no pouch. The most remarkable character of this animal is its possession of a great number of grinding or molar teeth, sixteen in the upper jaw and eighteen in the lower jaw. Is it a "survival" of a very

ancient form? The American opossum must be very ancient since it can prove its descent from the time when its relatives left their remains in the rocks beneath what is now Paris, dating from what is supposed to have been the Tertiary period. This means, of course, that the opossum isn't so very old after all, because the little myrmecobius had relatives in England whose relics have been found in the Stonesfield oolitic rocks, said to be older than the Paris Tertiary rocks by perhaps millions of years.

So the puzzle begins to muddle frightfully. Australia appears to be a surviving oolitic land still displaying a living representative of forms which passed away so many ages ago that they leave but rare and scattered relics walled up in the rock-ribbed hills. *Furthermore we find not the evolution from small forms to larger forms, as in the classical exhibit of the horse, and as is demanded as a rule of evolution, but monster forms devoluting to comparatively insignificant sizes.* We know that in Australia there lived beasts possessing the essential structural characteristics of the kangaroo, yet of the bulk of the rhinoceros, just as in the geologically recent deposits in South America are found the bones of tremendous beasts, first cousins to the sloths and armadilloes, which exist there still. This we know: the American opossum is a form of marsupial life now found only in America. It exists in lonely isolation in the midst of a vast continent abounding in non-marsupial forms of mammalian life. All other marsupials live together in one mass in all but complete isolation from non-marsupial beasts, yet the American opossum singularly upsets all the inferences that the evolutionist who demands progress would draw, if he could, from these baffling facts of natural history.

Whence came the opossum? How did it get to North

America? Why didn't it bring along the kangaroos and other marsupials of Australia? Why didn't the Australian marsupials include the American opossum in the general family? Who knows? Who will ever know? These questions are precisely like those which one must ever ask when examining the strange theories of man's ape-origin. That they defy the scientists of this generation will not be denied.

Why were Darwin, Huxley, Spencer, Haeckel and the rest so significantly silent with respect to the opossum? Why have the foremost evolutionists of this generation maintained similar silence? They have never lacked the knowledge that the marsupials, or pouched mammals, flourished during what is described as the Secondary epoch, and that the opossum, even though its first relics were found in the so-called Tertiary rocks under Paris, is really a true marsupial, and therefore originated with all the other marsupials in the Secondary epoch.

Nor have they lacked the knowledge that all the mammals of the Secondary epoch, without a single exception, have belonged either to the lowest form, the monotremes, or to the next lowest form, the pouched marsupials.

They have no hesitancy in assigning many millions of years to the gap which separates the secondary period from modern times, yet the fossils dating from those lost ages, millions and millions of years ago, are identical in structure and function with the still living, still flourishing creatures of their kind. Why this strange refusal on the part of the opossum and the kangaroo to conform with the exacting demands of progressive change? While the ape, some unknown form, of course, which no longer exists, of course, and which has left no fossil remains of any kind whatsoever, of course, was losing its identity and, according to the

evolutionist, was becoming half-ape, half-man, sub-man, cave man, Homo stupidus, and finally Homo sapiens, the opossum and the kangaroo, with the bat and the ant and the whale and the crocodile, and scores of other creatures, were content to remain, without change, just where they were. Man was making progress in strict accord with evolutionary demands, but these beasts were making no progress of any kind whatsoever, as if to question the dogmatic certainties of the evolutionary inferences whose complications and contradictions are ever becoming more and more helplessly involved.

Why does man alone make progress and why does such progress as he does make have nothing to do with his body? All beasts have bodies, yet if there is one beast-characteristic concerning which we are certain, it is that no beast makes progress of any kind whatsoever. Man's body is actually going backward. The vast improvement in sanitation, hygiene, and the extraordinary advances of medicine and surgery have not arrested the progress of degenerate diseases. Man's body has even now entered the epoch of decay, yet he continues astonishingly to make progress, even though it be for the most part confined to material things.

So we have come to the turkey, which is still classified as a bird, although birds and reptiles are so similar according to the Darwinians that all birds must be regarded as modified descendants of ancient reptilian forms. Birds can be grossly classified as those without a keel on the breast-bone and those with a keel. If one set of birds sprang from one set of reptiles and another set of birds from another set of reptiles how could the two sets have grown into forms so perfectly similar to each other in so many respects and so extraordinarily dissimilar in so many others? But per-

haps it all depends upon the nature of the reptiles and the number of millions of years granted to them. What kind of a reptile could have been the ancestor of the turkey? Not a rattlesnake, of course, or any such reptile form. We must find something special, so we attempt to smooth out the difficulty by insisting that the line of descent from reptiles to birds has not been from ordinary reptiles, through pterodactyl-like forms, to ordinary birds, but to the birds without keels on the breast-bone from certain extinct reptiles such as the Dinosauria.

One of the best known of these Dinosauria is the Iguanodon of the Wealden formation. The skeletal characters of these Dinosauria are wholly unlike those of ordinary birds, but in certain points they manifest resemblances to the osseous structure of such birds as the ostrich, rhea, emeu, cassowary, apteryx, dinornis, etc. These resemblances are quite as marked toward each other as are the resemblances, heretofore referred to, between the skeleton of the horse and the skeleton of man.

So we have come to the foothills of a whole mountain range of difficulties. What is the relationship of the pterodactyl to the English sparrow, the robin, the thrush and the turkey? What is the relationship between the Dinosauria, the ostrich, etc? What is the relationship of the ostrich to the Kentucky cardinal and the turkey? Either the two classes of birds must have had two separate and distinct origins from which they evolved to their present conformity or they must have developed spontaneous characters independently—a dilemma which from every angle hurls violence at the already crumbling structure of "Natural Selection."

Certain it is that the parent stock from which we are expected to believe that both classifications of birds descended could not have had at one and the same time

a shoulder structure of the two radically different kinds which are so strikingly dissimilar as to compel evolutionists to seek an explanation of the irreconcilable difficulty by resorting to the theory that although all birds have descended from reptiles, the two great classes have descended separately from two different kinds of reptiles.

One is not amazed, therefore, to find in the Proceedings of the Royal Institution, vol. V., p. 279, a paragraph which shows how sorely puzzled must have been the state of mind of Professor Huxley when he used the following words: "I can testify, from personal experience, it is possible to have a complete faith in the general doctrine of evolution, and yet to hesitate in accepting the Nebular or the Uniformitarian, or the Darwinian hypotheses in all their integrity and fulness."

Huxley found it expedient to avoid all discussion of the opossum. One searches in vain for any admission on the part of Darwin, such, for instance, as the confession of Sir Ray Lankester respecting the Piltdown fragments: "We are stumped and baffled." A little less vanity and a little more frankness would have been becoming to these apostles of chance evolution just as they would well become some of their modern heirs. We are trying against odds to resist the temptation to wander away from the turkey, which surely is not so vain a bird as the peacock, and yet the whole subject of vanity among the foremost evolutionists of the last century is so disconcerting, so distracting and so obsessing that we must linger upon it, if but for a moment.

The present generation has seemingly quite forgotten the vanity of Herbert Spencer, who even went so far in his passion for notoriety as to take into his confidence Edward Clodd, then president of the Folk-Lore

Society, by showing him documents to prove that the whole theory of evolution was formulated not by Darwin and Wallace, but by himself, in the year preceding the publication of Darwin's "Origin of Species." You will find this dismal tale in Clodd's still more dismal work, "Pioneers of Evolution," New York, 1897, Appleton, just as you will find in Darwin's letters, edited by his son Francis, the correspondence between Darwin and Wallace showing how it was proposed, through "Mr. Huxley's unrivalled power of tearing the heart out of a book," to compel the world to "marvel at the skill with which he makes Suarez speak on his side" (of the theory of evolution) when both Darwin and Huxley knew that only through corruption could either of them make it appear that Suarez was for them and not against them.

To appreciate the simple facts of the matter the student need only read "Darwin's Letters," Appleton, 1893, chap. xiv., pp. 287-295; "The Genesis of Species," by St. George Mivart, Appleton, 1871, pp. 28, 29, 30, 31, and "Lessons from Nature," by St. George Mivart, Appleton, 1876, pp. 430-449. These sad references are demanded by the same kind of truth that "robbed the Piltdown man of a muzzle that ill became him." That they bear more resemblance to the peacock than to the turkey is not so much the fault of Evolution as it is a symptom of man's infirmity.

So we come to the turkey, which is admitted to be of North American origin—a bird of Mexico. The opossum, though now confined to North America, once lived in Europe. Such is the evidence. The turkey, however, as the evidence proves, has ever been confined to America. Certainly this is so as far back as Miocene times. The oldest domesticated bird and the one most common throughout the world is the fowl so extensively bred by the ancient Egyptians—later used for cock

fighting in England. The ancestor of our domestic hen and cock, known to children as "chickens,"—the Bankiva fowl (Gallus bankiva) is found wild to this day from the Himalayas to the Philippine Islands. All these fowls, all peacocks and all pheasants are recognized by naturalists as birds of a feather. They are so closely related as to be described as gallinaceous birds—from Gallus, of course. They originated in Asia. Not one of them has ever been found in Africa, where an entirely different group of forms akin to the Guinea fowl is found.

We have seen the marsupial opossum in North America and the marsupial kangaroo in Australia, yet never was there a peacock, pheasant, chicken or Guinea fowl found in Australia.

But we do find in Australia the bush turkey, which differs from all the other birds of the world with respect to the manner of hatching its eggs. Every American farmer who maintains a silo in which he ferments corn stalks and corn in the production of ensilage, as a winter food for his cows, knows that throughout the entire fermentation process considerable heat is given off. The Australian turkey also knows this, so instead of sitting on its own eggs to hatch them out through the heat of its own body it deposits them in mounds, covering the mounds with heaps of decaying or fermenting vegetation. The heat thus evolved is all that the Australian turkey requires for the hatching of its eggs. There is still another turkey—a true gallinaceous bird—to be found in Brazil. The most gorgeous of all the turkeys, known as the ocellated turkey, is found in Central America. So we have turkeys of many kinds, peacocks, pheasants, chickens and Guinea fowls, together with partridges, grouse, and quails, all of which, though in many respects extraordinarily different from each other, are nevertheless true gallinace-

ous birds which we must believe, according to the evolutionist, are the descendants of *a certain unknown reptile.*

So far we know that there are nearly twelve thousand different species of birds, of which the "scratchers" are assigned to the gallinaceous group. The others are classed as "perchers," "cooers," "climbers," "waders," "runners," "swimmers" and "birds of prey." These primitive classifications are divided into extraordinary groups. First there are the crows, birds of paradise, and humming birds; then the kingfishers and their allies; then the woodpecker and its cousins; then the cuckoos; then the doves; then the parrots; then the eagle and the owls; then the pelicans; then the herons; then the bustards and rails; then the gallinaceous birds, including the turkey; then the snipes; then the gulls; then the auks; then the ducks and geese; then the penguins; then the ostrich. How they differ, one from the other!

The turkey belongs to a comparatively small group whose different representatives inhabit different quarters of the earth. This group is remarkable for the fact that it contains the most ancient species ever domesticated by man.

Here we may well repeat the confounding question apparently first asked by Mivart, "What is a turkey?"

Certainly it isn't a condor or a vulture, which in their own way present us with a new puzzle. The huge condor of the Andes and the king vulture are so exceptional in structure that naturalists actually insist that they are not vultures at all. Nor is it a rhea, America's ostrich, the bony girdle of whose hip differs in construction from that of all other birds in the world. It is not to be classified with the parrot-like hoatzin of South America, part of whose wing is extraordinarily large for a bird and so provided with two long clawed

fingers as to enable it to walk more like a four-footed beast than a bird.

So we see that among a set of peculiar American birds, the turkey occupies a position of such peculiarity as to defy explanation. The wonder is, as we shall see, that naturalists even suspect that the turkey is a bird at all. Birds are built for flight. Their rapidity of movement and endurance, together with their extraordinary conservation of energy and economy of motion, must ever confound the aerial engineer. Nothing could be so inefficient as the aerial navigation of 1921. There is more power in a 1921 airplane than was in the sails of a whole flotilla of frigates a hundred years ago. The stupendous power of the aerial motor has given us sensational results quickly, so that the problems of flight have been actually disregarded. Man's flight depends upon freak devices in which an aviator has at his command a howling volcano. The bird's wing fans the air with a slow motion, three strokes to the second. This slow motion produces high speed in flight, whereas the airplane's propeller has the speed of a rifle bullet with comparatively slow speed of flight.

The bird's whole structure is extraordinary. All its organs are so arranged as to bring its center of gravity precisely where sustained flight demands it, yielding at the same time the greatest strength with the least possible weight. Lightness of structure and great power with muscles capable of lifting and depressing the wings are marvelously effected. For the opposite wing actions huge muscles, if arranged as among mammals, would be attached to the back as well as to the breast. But this would be in defiance of gravity, consequently the great muscles working in opposite directions are found on the breast of the bird just where weights are attached to the keel of a sailing craft. By the aid of thin, tough tendons the bird attains great

strength in its legs and yet is able to draw the strong and heavy leg muscles up toward the center of gravity where they will least interfere with flight.

The turkey shares with all other birds these structural characters, yet it differs from all other birds as radically as a monkey differs from a horse, a bat from a hog, a squirrel from a walrus, a deer from a whale or an elephant from a jack-rabbit. Some beasts are covered with hair, some with fur, some with wool, but all birds are covered with feathers. As no such thing as a feather is possessed by any other creature except birds, the turkey, which possesses feathers, must be a bird. But birds, we are told, stand midway between reptiles and beasts. All reptiles possess cold blood. All beasts possess warm blood. A reptile's blood may be a low as 60 degrees or 40 degrees Fahrenheit. The blood of beasts approximates 100 degrees Fahrenheit. The blood of birds should come between them, yet the temperature of the turkey is 107 degrees Fahrenheit. Thus the turkey, which comes between the reptile and the beast, puts the beast between the reptile and the turkey. For that matter so does the barnyard fowl.

Birds differ more from reptiles than reptiles differ from beasts, not only in temperature but in other factors. Some beasts have but two limbs; some reptiles have but two limbs; some reptiles have no limbs at all; some reptiles have four limbs; some beasts have four limbs. Every bird has two limbs. The limbs of beasts and reptiles are variously constructed. There is no resemblance between the structure of the wings of the bat and the scoop of the mole; the paddles of the whale and the foot of the horse, but in birds the hind-limbs are always "walking" legs and the fore-limbs are always wings. Many beasts, with many reptiles, have very long tails. Some have none at all. But every bird possesses tail feathers supported by a tail root of flesh and

Courtesy Zoological Society.
Photograph by Edwin R. Sanborn.

Even the grizzly bear, like the gorilla, can be *compelled* to stand upright. In this unnatural attitude he assumes a position more erect than the *forced* position of the anthropoid ape when the latter is compelled by his trainer to take a "standing posture." This uprightness, in the case of the bear, is never used by the evolutionist as an argument to prove that man and bear are related.

bone. Some reptiles have scales, other have none. Great diversity exists in their coverings. No reptile has feathers, but all birds have scales on their feet as well as feathers on their bodies.

Is the turkey reptile, beast or bird? All beasts and reptiles have teeth except ant-eaters, turtles and terrapins, yet no bird has teeth. The many thousands of species of animals, with three lonely exceptions, have teeth, *yet of the twelve thousand species of birds not one has teeth. How comes it that these toothless birds have descended from toothed reptiles?*

In Miocene times, although the parrot lived in Europe, the turkey did not. The evidence indicates that it was confined to America. The Archeopteryx, found, 1861, in oolitic strata in Bavaria, is generally looked upon as the oldest of all the extinct birds. It, too, differed from all other birds. Instead of having a stubby, fleshy, nosey pad of bone and flesh for a tail, it possessed a real tail containing twenty bones, from each of which two long feathers projected.

The turkey symbolizes the great riddle. Evolution proposes a reptilian beginning and points to the Iguanodon and the ostrich, the one a reptile, the other a bird, to show that a transition could have been effected from the reptile to the bird, the inference being that the bird ostrich is the nearest thing to the reptile Iguanodon. But the ostrich is millions of years younger than the Archeopteryx, which is not at all like an ostrich and certainly like no reptile. Except for its tail the Archeopteryx is more modern than some modern living types, even though it has been extinct these millions of years. Moreover the ostrich is not a creature half-reptile, half-bird, now progressing toward the true flying bird, but on the contrary it is now looked upon as the degenerate descendant of birds that used to fly

millions of years ago but have now lost their power of flight.

If the turkey, which can take the air in a fashion, knows anything concerning the origin of birds, not only does it refuse to tell, but by the development of its curious characters it evidently has conspired to so muddle and conceal its knowledge that no man may filch from the confusion a hint of the truth.

The broad indisputable fact stands out beyond dispute that no species of animal, save man only, makes progress. Progress results from the exercise of a rational intelligence, free choice and free will. Man alone possesses these attributes of man. Rational intelligence differs from instinct. All animals possess instinct. Whence came man by his rational intelligence if it be not true that he is made in the image and likeness of God? The irrationality of animals is shown by what, if they were rational, would have to be called their exceeding stupidity. "Intelligent" dogs can be taught innumerable tricks and are, therefore, "rational." Alas for the soundness of such deduction. St. George Mivart, demolishing the theory that any animal is capable of exercising reason in the slightest degree, and presenting scores of examples in proof of what must, upon reflection, be obvious to all, says ("The Groundwork of Science," 1898, pp. 177-178):

"Dogs have seen fuel put upon fires again and again, yet what dog ever puts on any itself to maintain the heat it so much enjoys? Apes have been said sometimes to warm themselves at deserted fires, yet no one asserts that they have replenished them." With respect to the "pet cat which has now and again got a piece of bone fixed between its back teeth, the useless motions the animal will make with its paw are sufficiently irrational; but it will act in the same way again and again and will sometimes struggle against its mas-

ter while he removes the object which distresses it. Swallows will continue to build on a house which they can see is being pulled down. Even an elephant, an animal often thought so extremely wise, has been known to pull off the end of its trunk which had got caught in a cord instead of calling for help and waiting till its keeper came."

So, too, he says, "with respect to apes we have always to be on our guard against the deceptive effects of their tricks and ways due to the close resemblance which exists between their bodily frame and our own. On this account, if two actions essentially similar are done, one by a pig, the other by an ape, the latter would necessarily appear in our eyes to be far more of a 'human' action."

Who has not commented on the "human" method employed by the ape in breaking a nut and extracting its meat from the shell? How wonderfully "human"! Yet when the squirrel performs the same feat, with a neatness and dispatch of which the ape is incapable, no such comment, concerning "humanness," is offered. Even the advertisements in the subway trains inform us that "You can teach a parrot to say 'just as good' but it won't know what it is talking about."

For scores of astonishing instances of the radical and fundamental difference between the rational intelligence of man and the unreasoning instinct of animals see "The Humanizing of the Brute," H. Muckermann; "Psychology of Ants and of Higher Animals," E. Wasmann; and the entire series of works by J. Henri Fabre.

CHAPTER XX

An Osborn Letter

Osborn's letter on McCann—"Evidence of convergence"—Relics of the medieval ages—Why marsupials still?—Effect of misinformation.

We are still unable to grasp the significance of Professor Osborn's confession: "Man is not descended from any known ape, either living or fossil." We shall probably never know why he adds a "but" to this confession: "But a hypothetical ancestor was the Propliopthecus Haeckeli." Thus it becomes increasingly difficult to comprehend the motive for exhibiting as scientific truth the sweeping contradictions and flimsy hypotheses of the Hall of the Age of Man. Are we to consider the Hall of the Age of Man as a Nursery of Truth or the Sepulchre of a Dead Evolution?

Considering the extent of the influences masquerading in the name of "science" it requires no great effort to understand why men and women who pride themselves on being "by no means illiterate" have come by the opinion that there is a general agreement, a satisfactory concurrence of conviction and a universal acceptation among scientists of the doctrine that man is a descendant of the ape.

Professor Osborn himself, in a letter to the editor of the New York *Globe,* June 1, 1921, gave a demonstration of his method of creating impressions at the expense of truth. He said: "The American Museum of Natural History and the Hall of the Age of Man, to which Alfred W. McCann refers, scrupulously avoid presenting theories and rest on the solid ground of well ascertained facts. This is why this Hall is sought

not only by scientists from all parts of the world and by the rising generation of scientific men and women, but also by religious teachers who come here to see what Nature has thus far revealed concerning man's past history.

"From time to time I see parties of clergymen of different denominations studying what this Hall exhibits of our past life. The spiritual value of the emergence of the Cro-Magnon race, many thousands of years ago, with its deep religious sentiments, is one of the greatest discoveries of modern times relating to the spiritual development of man. It is so regarded by all teachers and writers who are keeping up to date in the progress of discovery and human thought. For a scholarly treatment of this wonderful race I would refer the author (Alfred W. McCann) of these articles to two papers by James J. Walsh, M.D., Ph.D., entitled 'The Evolution of Man,' which appeared in the *Catholic World,* New York City, May, 1916, pp. 207-218, and June, 1916, pp. 315-332.

"The first of these papers closes as follows: 'We have a right to expect that professors at universities shall teach nothing as truth to their students except what they are absolutely certain of. We expect, above all, that what is presented as science, for scientia means knowledge, not conjecture nor theory, shall be beyond dispute and cavil. If there is the slightest reasonable doubt about so scientific theories, we expect them not to be represented as doctrines, but solely as theories with whatever doubt there is about them rather emphasized than minimized or obscured in any way. We have a right to expect that the relation of professor and student shall be above all one of the utmost candor and sincerity, lacking in pretense and in any attempt at producing a sensation for the sake of the sensation.

" 'When university professors teach the public, moreover, we expect from them a greater regard for their position as teachers. For if, as Juvenal said,

"maxima pueris debitur reverentia," the greatest reverence is due to youth, then surely the public, who, without the means of critical judgment, sit as unquestioning children at the feet of the professors, should never, by any half truth or any suppression or distortion of truth, be led to accept as scientific truth what is still really a matter of dispute and unsettled by scientists themselves.' "

(Careful comparison of Osborn's letter with the matter quoted in the two preceding paragraphs discloses an exactness in quoting fragments minus the rebuking text; minus any reference to the chastisement it inflicted.)

"It is in this spirit that the Hall of the Age of Man has been arranged. Every fact has been presented in its true significance. From forty-three years of experience as a teacher I have come to believe that the most serious digression on the part of a teacher is to substitute opinion or theory for fact. In every department of human thought—philosophy, economics, sociology, as well as in human and comparative anatomy, around which the central cases of the Hall of the Age of Man are arranged—the great effort has been to present the evidence simply and clearly. To write down nothing in hypothesis, nothing to extenuate—this is the secret of the educational value of the Hall of the Age of Man. It is inspiring and uplifting because it is truthful. It represents a century devoted to research in all parts of the world and leaves out entirely the century of speculation and hypothesis, as well as of unenlightenment, criticism, and misrepresentation.

"I shall be very glad to have you publish this letter if you like in the columns of your valuable paper."

(Signed) Henry Fairfield Osborn,

Honorary Curator, Department of Vertebrate Palæontology, American Museum of Natural History.

By his reference to a Catholic publication and a Catholic writer (Dr. Walsh) he creates the impression that on the subject of Dr. Walsh's paper, "The Evolution of Man," he and Dr. Walsh think alike and that both reflect the views of the Catholic Church. But what are the facts? The very first paper of Dr. Walsh, to which Professor Osborn thus appeals, constitutes a sweeping criticism of Professor Osborn's book, "Men of the Old Stone Age."

Referring to the surprising manner in which Professor Osborn features the reconstruction of the Piltdown man "since practically all the weight of authority is against any such estimate of its significance," Dr. Walsh says: "Is not such unwarranted piecing together of discrepant material unworthy even of a pettifogging attorney? . . . Such juggling bespeaks the mountebank; not the scientist."

Surely Professor Osborn did not believe that the editor of the New York *Globe* or the writer would take the trouble to obtain a copy of an old magazine containing such a reference to himself when he appealed to Dr. Walsh's paper on "The Evolution of Man," as "proof" that he and Dr. Walsh, reflecting alike the views of the Catholic Church, were representatives of the theory which the writer had undertaken to criticize.

Professor Osborn characterized the writer as "just half a century behind the times" by reason of the fact that "the religious men of all the churches accept evolution as a fact." While he was making this statement the American Lutheran Publicity Bureau, with offices in the Hartford Building, 22-26 East 17th Street, New York City, was publishing in the metropolitan press at regular advertising rates a vigorous denunciation of the so-called scientific theories of man's origin which run counter to the doctrine of creation by God.

If the Lutheran Church, which is surely one of the

churches, accepts evolution from the ape as a fact, why does it go to the expense of advertising the contrary?

The writer is not classifiable as "a religious," and is at a loss to reconcile with truth and candor Professor Osborn's attempt to take refuge in a magazine article published five years before, and therefore obtainable with the greatest difficulty, particularly when it is discovered that instead of affording him a refuge, it is in reality an exposure and refutation of his theories, and quite as warm in color as the Lutheran ape-man-protests.

It is precisely because public opinion has little or no means of access to such refutations that public opinion is prone to ridicule any attempt to present facts out of harmony with public opinion. Of course this attitude of the public constitutes intolerance, but the public does not regard it as such, and never will while opinions are poured from high places as "scientific fact."

Having no suspicion of its own that the facts are wholly different from the ready-made opinions it accepts, the public is inclined to look upon any surprising appearance of heretofore hidden facts as so much scientific heresy.

"Evidence of Convergence"

Professor Osborn, insisting that he does not substitute opinion or theory for fact; that he writes down nothing in hypothesis; that his work is inspiring and uplifting because it is truthful, is curiously silent on the "Evidence of Convergence." Nowhere does he refer to convergence in his ape-man theory, yet palæontology, which is his specialty, is itself responsible for the observations that animals which stand far apart exhibit changes in the same direction and de-

velop these changes so that eventually they approach each other nearer than they were before.

In other words, they "converge" toward each other. By convergence palæontology attempts to explain how, within quite different groups of mammalia, a most deceptive similarity of the jaw construction is observed. During Osborn's own career a polyganol epidermal plate was ascribed by Professor Filhol to an extinct armadillo, a true member of the mammalia family, although subsequently an almost exact replica was found, this time on the head of a reptile!

Osborn's own evidence of convergence explains the "resemblance" of whales to fish, although whales are not fish at all, but true mammals. Changing their forelimbs (arms) into fins (paddles) and their hind-limbs into nothingness the whales have converged ever more and more in external features toward true fishes with whom they are not at all related while they themselves have remained true mammals. Why does Professor Osborn withhold the suggestion that apes, despite their superficial convergence in externals toward a fantastic resemblance to man, remain nevertheless true apes? The writer frankly admits that convergence explains nothing, adds nothing and takes nothing away when any theory of evolution based on natural selection is under discussion. Why has the giraffe, for instance, not converged toward the elephant? If natural selection explains the long neck of the giraffe for high browsing purposes why would an extension of its nose, like the extension of the nose of the elephant, not have been better? Why has no other hoofed quadruped acquired a long neck and a lofty stature besides the giraffe? Why has the camel not acquired a proboscis like the elephant? Why is the elephant alone the beneficiary of a proboscis? Why has the elephant no neck at all? If natural selection is a freakish, whim-

sical, capricious handmaiden of evolution it ceases to be natural selection and becomes merely bizarrish selection.

Darwin admits law and order; Wallace demands law and order; Bateson proves law and order, hence the evolutionist's difficulties become more and more intolerable.

The vagueness and confusion provoked by the giraffe is set forth by Sir Charles Lyell, who so greatly influenced Darwin. He says ("Antiquity of Man," 1863, pp. 410-411): "Lamarck when speculating on the origin of the long neck of the giraffe imagined that quadruped to have stretched himself up in order to reach the boughs of lofty trees until by continued efforts and longing to reach higher he obtained an elongated neck. Darwin and Wallace simply supposed that, in a season of scarcity, a longer-necked variety survived the others and transmitted its peculiarity to its successors. Every naturalist admits that there is a general tendency in animals and plants to vary; but it is usually taken for granted that there are certain limits beyond which each species cannot pass under any circumstances or in any number of generations. (Here you have a law which is not bizarrish.) Darwin and Wallace say that the oppositive hypothesis, which assumes that every species is capable of varying indefinitely from its original type, is not a whit more arbitrary. We have no right, they say, to assume, should we find that a variable species can no longer be made to vary in a certain direction, that it has reached the utmost limits to which it might, if more time were allowed, be made to diverge from the parent type."

Perhaps in another million of years the giraffe will have twice as much neck as he now has and the elephant

less neck than none at all, and a proboscis tremendously extended. Perhaps!

Relics of the Medieval Ages

If it be true that animals, originally widely separated in kind, become more "similar" by variation in the same direction, and if it be true that in no case does the entire change, which the varied forms finally show in comparison with the original forms, extend so far that offspring and parent can no longer be united within the same systematic class, all of them still forming the same order, the same family and even the same genus, how does Professor Osborn, upon evidence which he himself admits does not exist, exhibit, as a positively established fact, the opinion that man descended from some form of ape, even though no such ape is now living and no fossil remains of any such ape have ever been discovered?

When critics a half century ago, to which period the professor assigns the writer, pointed out the flaws in Haeckel's hypothetical pedigree, they were denounced as "relics of the medieval ages."

Yet those very flaws were later discovered by scientists themselves to be not accidental errors but deliberate falsifications. Why does Professor Osborn not refer to them at all?

If there were no plan in nature why are extraordinary variations permitted within limits and no self-perpetuating variations at all outside those limits? Breeders can develop surprising variations in dogs, horses, cattle, pigeons, cabbage, peas, garden cress, etc. A dwarf race can be crossed with a giant race of the same species, yet fruitful inter-crossing does not occur except between individuals of the same species, and even then sometimes not at all. Why

doesn't the horse mate with the ass? Why is there no cross between the apple and the pear? Why, in Australia, which is a whole continent and which science itself tells us was separated from the rest of the world when the most primitive forms of the mammalia first appeared, have all the marsupials, Tasmanian wolf, Australian ant-eater, mole, wombat, kangaroo and wallabie, assuming the most varied modes of existence and suitable construction of the body, remained marsupials?

The marsupials are confined, as we have seen, with the single exception of the South American kangaroo rat, to Australia, although palæontology provides evidence that earlier in the Secondary and Tertiary periods they existed in Europe and in North and South America.

Why Marsupials Still?

Why, let us repeat, through these millions of years, have they remained marsupials, although Australia has presented opportunities for the most diverse modes of existence? Why, if not because the marsupials present a real type which varies in form but is not abandoned? There is an overwhelming body of proof that certain basal forms are firmly retained and that the whole theory of evolution from a common ancestor must be completely abandoned. Certainly the marsupials have had time and opportunity for the full development of their maximum evolutional capacity. Why, then, through all these millions of years, have the limits to such evolutional capacity been so sharply defined?

Professor Osborn will scarcely argue that the various continents could have had their own animals and plants from the beginning. Even the present conti-

nents did not always exist. How, otherwise, could marine creatures be found in the Alpine strata?

Effect of Misinformation

Entirely apart from the scientific mystery of the origin of life, the theory of evolution is so full of enigmas which elude explanation and so full of contradictions which sweep it out of reason that little remains of it but catchwords.

Professor Osborn, who has no conception of the general law which has governed the unceasing transformation of organic life from its beginning on the earth to the present day, says the Hall of the Age of Man is inspiring and uplifting because it is truth.

But one of his followers, by whom it is admitted he is not bound, but who nevertheless derives his inspiration from the Hall of the Age of Man, writes to the editor of the New York *Globe* in defense of that Hall as follows: "We don't want Jehovah and his creations brought down from the attic, where even ecclesiastics are content for the most part to leave them." Ecclesiastics are men, not angels, possessing their share of human infirmities, but, however lacking in the burning zeal of Francis of Assisi, they have not yet announced any God-in-the-attic idea.

Another writes: "McCann is attacking the laws of evolution as a defense of the teachings of the Catholic Church against evolution." Note the phrase, "the laws of evolution." Note the phrase, "the Catholic Church."

Another writes: "It is astonishing that McCann should attack science, by challenging the accepted opinions of the day."

These astonishing expressions of public opinion eloquently disclose the extent of the misinformation and

confusion under which the general public groans in its attitude toward the thing it calls "Darwinism." In the first place the Catholic Church does not attack the theory of evolution nor does the writer attack science. When opinions, feebly supported or not supported at all, are paraded as "the crystallized conclusion of science," or when they are given such histrionic emphasis as to make them appear authoritative they themselves constitute abuses of science, attacks upon science.

As regards the Catholic Church, every Catholic is as free as the wind to follow scientific facts wherever they may lead, either into evolution or out of it. Pope Leo XIII., in his Encyclical "Aeterni Patris," August 4, 1879, clearly defined the attitude of the Catholic Church toward evolution: "We declare that every wise thought and every useful discovery, wherever it may come from, should be gladly and gratefully welcomed."

CHAPTER XXI

St. Augustine; St. Thomas

St. Augustine; St. Thomas—Science and romance—Osborn's opinions disregarded.

It may startle the average individual to learn that out of the Catholic Church itself came the idea of evolution—not during the last century of Darwin, Haeckel, Huxley, Spencer, etc., but fourteen centuries ago. Evolution was broadly discussed by St. Augustine. Robert Kane, a Catholic priest, in his "God or Chaos," pp. 170-171, outlines the principles of evolution as advanced by St. Augustine when the Catholic Church was less than 600 years old. All things at first existed only as Semina Rarum (the seeds of what was to be). There was at first in things only the potency of what, under the action and reaction of strong or slow forces, they should become.

During days which were epochs of unmeasured duration and of cumulative result the Molder of the world worked merely through natural elements and uniform laws until the universe crystallized into order. Man's spiritual soul was not made of mere mud nor begotten by an ape, but was created by the immediate power of God.

In "Modern Biology," p. 274, the foremost European authority on ants, Erich Wasmann, a Catholic priest, writes: "Even to St. Augustine it seemed a more exalted conception, and one more in keeping with the omnipotence and wisdom of an infinite Crea-

tor, to believe that God created matter by one act of creation and then allowed the whole universe to develop automatically by means of the laws which He imposed upon the nature of matter.

"God does not interfere directly with the natural order when He can work by natural causes: this is a fundamental principle in the Christian account of nature and was enunciated by the great theologian Suarez, whilst St. Thomas Aquinas plainly suggested it long before, when he regarded it as a testimony of the greatness of God's power, that His providence accomplishes its aims in nature not directly, but by means of created causes."

Another Catholic priest, Joseph Hussline, in his "Evolution and Social Progress," says, p. 97: "It is, therefore, an old theory within the Church that the act of creation took place at once and that what followed was but an evolution according to the laws that God had given."

Still another Catholic priest, Ernest R. Hull, interpreting this old attitude of the Catholic Church toward evolution, as conceived by St. Augustine, says: "He (Augustine) says that while the original act of creation was direct and simultaneous, the subsequent formation was gradual and progressive. He tells us distinctly that animals and plants were produced, not as they appear now, but virtually in germ, and that the Creator gave to the earth the power of evolving from itself, by the operation of natural laws, the various forms of animal or vegetable life. His treatment of the subject, in fact, reads like the anticipation of a modern scientific treatise."

Ernst Haeckel, "The Origin of Life," American edition, 1904, p. 349, suggests that St. Augustine got his ideas of evolution indirectly through Aristotle on account of the fact that the saint could see for himself

that living maggots sprang from rotten meat. Of course Aristotle believed that lower organisms could arise from the dead remains of higher organisms, such as fleas from manure, lice from morbid postules in the skin, moths from old furs and mussels from slime in the water.

As Aristotle was authority for such ancient tales, St. Augustine had to reckon with them, on which account "they were believed by the other fathers and reconciled with the faith" until the Abbé Spallanzani and Louis Pasteur demonstrated, in the eighteenth and nineteenth centuries, that all these living creatures arose from eggs deposited by females of their kind on rotten meat, dung, skin, fur, slime, etc., and that spontaneous generation is a myth.

St. Thomas Aquinas, in the thirteenth century, hundreds of years before the assertion that the Catholic Church was opposed to evolution, remarked: "In the institution of nature we do not look for miracles, but for the laws of nature. As regards the apparent division of the creation process into several parts, and the picture of God issuing successive edicts to bring successive events about, the creation is presented to us as though it took place in separate sequence, yet it really took place at once. For in it were now made, as in the roots of time, those things which were afterward to be produced in the course of time."

Sir Bertram Windle says in his "A Century of Scientific Thought," p. 8: "The language of Peter Lombard and of St. Thomas Aquinas makes it clear that the teaching of St. Augustine is quite consonant with any reasonable theory of evolution—nay, it is broad and comprehensive enough to provide not only for whatever limited degree of evolution is yet fairly established, but even for anything that has even a remote probability of being proven in the future."

The Catholic Encyclopedia fully defines the attitude of the Church with respect to evolution in the following words: "In what particular manner the plant and animal kingdoms received their existence, whether all species were created simultaneously or a few only, which were destined to give life to others; whether only one fruitful seed was placed in Mother Earth, which under the influence of natural causes developed into the first plants, and another infused into the waters gave birth to the first animals—all this the Book of Genesis leaves to our own investigation and to the revelations of science, if indeed science is able to give a final and unquestionable decision.

"Whether with St. Augustine and St. Thomas one hold that only the primordial elements, endowed with dispositions and powers for development, were created in the strict sense of the term, and the rest of nature —plant and animal life—was gradually evolved according to a fixed order of natural operation, under the supreme guidance of the Divine Administration; or whether with other fathers and doctors of the school one hold that life and the classes of living beings—orders, families, genera, species—were each and all or only some few strictly and immediately created by God; whichever of these extreme views he may deem more rational and better motived, the Catholic thinker is left perfectly free by his faith to select."

Science and Romance

Obviously the writer's articles were not inspired by any hostile attitude of the Catholic Church toward the theory of evolution where no such hostility exists. It would be quite as consistent to say they were inspired by the attitude of the Lutheran Church. The simple fact is that they were inspired by the unscientific and

Courtesy Zoological Society.
Photograph by Edwin R. Sanborn.

Natural walking posture of chimpanzee similar to that of gorilla. Note dog-like profile of face, which, when examined from "unfavorable" angle, is seen to lose all resemblance to human head and face.

extraordinarily elaborate misuse of fancy and imagination in the reconstruction of mythical creatures, held forth in the name of truth, science and education, as discoveries of palæontologists, geologists, anthropologists and zoologists.

Science has nothing to do with fancy or imagination. Poetry and science are not synonymous. Science deals with facts known to be facts, and not with opinions supported by conjecture, speculation, assumptions, presumptions or theoretical connecting links, such as the three ape-man busts of Osborn, the reproductions of which now grace so many text books on zoology and biology.

To attack science, the calm, the immutable, the exact, is one thing—the work of a fanatic or an irrational being. To attack an abuse of men claiming to represent science is not only a privilege but a duty, and he who shirks it through fear of criticism or through dread of precipitating a controversy in which he himself may lose prestige is no lover of truth. Rather does he love comfort more.

Whatsoever soundness Professor Osborn may claim for his opinions concerning man's ape-origin, he can claim no soundness at all for his opinions that wild seals, if left alone by man, would exterminate themselves as a result of the "fighting of the bulls for the females, in which fights the females and the pups would be killed."

Fur-sealing in Alaskan and British waters had suffered for many years because of the decimation of the herds through indiscriminate killing. When the United States acquired Alaska from Russia the seal herds were estimated to contain 2,500,000 animals. Then, through wanton slaughter, the herds so declined as to threaten them with extinction. By 1911 the situation had become so serious that the necessity of

establishing a "closed season" making the killing of the seals illegal, was perceived by Congress. An investigation resulted. While this investigation was in progress, January 22, 1912, Professor Osborn gave to the House Committee on Foreign Affairs so much astounding information, in the name of "science," that even the committee itself attempted to suppress the professor's communications after they had been read by the Honorable William Sulzer in an executive session.

However, one of the members of the committee (Mr. Goodwin) openly discussed the Osborn statements with the result that their publication was forced at the hearings, May, June and July, 1912, before the House Committee on Expenditures in the Department of Commerce and Labor.

Thus was developed the fact that on the letterhead of the New York Zoological Society and again on the letterhead of the American Museum of Natural History, Office of the President, Professor Osborn wrote to William Sulzer, chairman, House Committee on Foreign Affairs, characterizing as "vicious" the proposal of Congress to put a closed season on male seals. "This," he declared, "will certainly lead to the complete extermination of the seal. I understand it was proposed by Mr. Elliot (Henry W.), who has no standing in this country as a zoologist, and believe is supported by my friend Dr. Hornaday, who, I regret to say, has come under the influence of Mr. Elliot. Dr. Hornaday's position does not in any way represent the judgment of the New York Zoological Society. All the zoologists of note in this country, all the scientific experts whose opinions are worthy of consideration, all the trained experts who have made a special study of the fur seal problem, all naturalists who understand

that an excess of males is fatal to both the females and the young, are opposed to the closed season."

That Professor Osborn was desirous of aiding the pelagic sealers to get as many seal-skins as they could would be a harsh inference, although he certainly sought to enable them to go on killing.

"I have given this matter very prolonged study," he wrote, "and I regret to say that your committee has been given a great amount of misinformation under the guise of sentiment for the protection of these animals. My opinion is identical (with the exception of my friend, Dr. Hornaday) with that of all the leading zoologists and mammalogists of rank in the United States."

To this communication, signed as "president of the New York Zoological Society," he added another signed as "president of the American Museum of Natural History," in which he said: "I have been securing the advice of the expert zoologists of this institution, especially of Dr. Frederic A. Lucas, who is a trained authority on the fur seal question. I desire to protest against the State Department's closed season on male seals. This would exterminate the great seal herd of the United States and is founded upon ignorance of the first principles of breeding."

Called as a witness, Dr. Lucas was sworn, Thursday, May 16, 1912. He denied that Professor Osborn, as declared by the latter, had consulted with him or asked his advice. He testified he knew nothing of the Osborn letter until after it was written. Asked how Professor Osborn got the impression that the seals would be exterminated by their own bulls unless the sealers were permitted to kill them, Dr. Lucas testified: "I do not know. You will find all my publications entirely different from that."

Mr. Elliot: "So you will not be responsible for what Dr. Osborn says?"

Dr. Lucas: "Not in this case; certainly not."

Mr. Elliot: "You don't believe they would exterminate themselves if left alone, do you?"

Dr. Lucas: "No."

Mr. Patton: "You don't believe they would do as well as if there was killing going on there, rightly controlled, do you?"

"Dr. Lucas: "No; neither do I believe that they would be exterminated if left alone." (Dr. Lucas is the Director of the American Museum of Natural History and the author of "Animals of the Past," published at the Museum.)

Dr. Charles Haskin Townsend, Director of the New York Aquarium, called as a witness, was sworn. He testified that he was not responsible for the writings of Henry Fairfield Osborn, President of the New York Zoological Society, by which he meant he was not responsible for the writings of Henry Fairfield Osborn, president of the American Museum of Natural History, of which institution Dr. Lucas is director.

The whole story of the charges concerning the faking of charts, the attempt to discredit scientific witnesses and the manufacture of data designed to create false impressions is fully covered by the U. S. Government report of the hearings, pages 705-796, and 897-1013.

Osborn's Opinions Disregarded

Professor Osborn's opinions were disregarded and the closed season was established August 15, 1912, for five years. Instead of the bulls fighting among themselves, killing the females and pups and exterminating the herd, according to Professor Osborn's scientific convictions, the herd increased from 220,000 seals of all classes in 1913 to more than 1,000,000 seals of all classes in 1921. Obviously opinions concerning scien-

tific facts observable under one's very eyes, could not be discredited in such extraordinary fashion as Professor Osborn's opinons have been discredited without weakening the value of his opinions concerning what went on in the mists and shadows 500,000 years ago.

The seals are here now, in the water. The "closed season" has come to an end. Slaughter has resumed. Their habits of life, their conduct under natural and artificial conditions, their fur, their flesh, their blood and bones, as well as the living animals themselves, are on exhibition for the benefit of the scientific observer as they were ten years ago. With all this evidence to assist him in the formulation of a correct opinion, Professor Osborn was dismally and abysmally wrong. *Yet back there 500,000 years ago, with not a solitary fossil relic of any kind to aid him, he remains sublimely certain of the scientific accuracy of his opinion that man has descended from an ape of which there is no living type or fossil remains in existence.*

Professor Osborn, if he told the truth when he declared "all the zoologists in this country, all the zoologists and mammalogists of rank, all the scientific experts whose opinions are worthy of consideration, all the trained experts, etc.," has not only indicted the value of his own opinion but he has also indicted "all the zoologists in this country (sic), all the zoologists and mammalogists of rank (sic), all the trained experts, etc." If they were all wrong in this very modern, very up-to-date, scientific matter what can be said of their opinions in matters extending beyond the reach of human vision?

No wonder William Jennings Bryan, July, 1921, protested vehemently against the teaching of "Darwinism" in the schools and colleges, not only on the ground that it was wholly unscientific, not only because of lack

of proof, but because of overwhelming proof to the contrary, but furthermore because it was degrading in the worst sense to the young men and women who accepted it as gospel.

Professor Osborn does not know. Mr. Bryan does not know. St. Augustine did not know. Nobody ever knew. Each of us is permitted to speculate to our heart's content but none of us may ask another to accept an inference as a FACT. St. Augustine himself has no power to command acceptance of his suggested theory of evolution. He had to notice what to him was a "queer" phenomenon—the appearance of maggots on rotten meat. That was indeed a FACT and it seemed to him to indicate something like the spontaneous generation of life. It was a very simple FACT but he had no explanation for it and might have known that he needed none. In seeking to find one he got just as far out of philosophy into science as he could possibly go. That he went too far may or may not be true. But this is true: he did not invent data to "prove" his theory.

CHAPTER XXII

Twelve Earthy Salts

Twelve earthy salts—The soulless THING—The chemic creed—Superstition and intolerance.

Even H. G. Wells limits his bold assurances concerning man's origin to man's body. He avoids discussion of the origin of man's soul, as if the soul might not be mentioned among intellectuals for fear of incurring the charge of superstition, yet A. Conan Doyle, Sir Oliver Lodge, and a host of others classified as intellectuals suffer no timidity when, as spiritists, they proceed to their demonstrations of the survival of the soul after the body and the persistence of life beyond the here into the hereafter. Yet spontaneous generation with respect to the origin of man's soul is quite as unthinkable as spontaneous generation with respect to the origin of his body, no more, no less so.

Professor Plate clung to the theory of spontaneous generation on the ground that there were some twelve earthy salts found in the living organism, and that the living organism after death always returned to these twelve earthy salts.

This is the definite connection between lifeless matter and life upon which the theory of spontaneous generation, bursting from a "chemic-lump," is based.

If the living body, after death, is reduced to these twelve earthy salts, it certainly does follow that *it was composed of them, but it does not follow that it came into existence out of them spontaneously.* Otherwise a

ship which is wrecked and broken up into firewood should have no orderly design or efficient workmanship behind it, but rather should have sprung into existence automatically out of a lumber pile.

On the brazen assumption that the act of creation, on which have been imposed inexorable laws by a lawgiver, is at war with evolution, although all that science reveals concerning the latter and all that philosophy reveals concerning the former harmonize and complete each other, Wells, devoting 103 pages to the descent of man's body from the ape, is compelled to avoid even the mention of the spiritual essence that distinguishes men from apes and all other animals.

Because this spiritual essence IS recognized, and because materialistic evolutionists ARE compelled to reckon with it, they have coined all sorts of names for use in avoiding the stumbling block always presented when the word "soul" is employed. They call it "sensation," "perception," "imagination," "mental equipment," "mind as the inner side of the brain and brain as the outer side of the mind," and so on.

The Soulless THING!

Confronting the phenomenon of free will, they are obliged either to admit the existence of the soul or to deny free will entirely. They argue that psychical energy is merely mechanical energy and thoughts are nothing more than the movement of atoms. It is futile, therefore, to struggle against crime on the ground that the exercise of free will, which doesn't exist, can make choice between good and evil. There is no good or evil, they say, but whatever they say there is much evidence to prove that the idea of the futility of struggle against crime flows naturally out of contempt for the soul and free will.

If man regards himself as nothing more than a highly developed ape and is convinced that he must inevitably yield to the impulses inherited from the ape, however gross, it is not difficult for him to find comfortable justification for any act or any crime that he can commit without discovery. Refusing to discuss his own soul and holding in contempt his own free will, he must accept the theory of evolution without God rather than of evolution with God. Do we not witness the spectacle of Haeckel, teacher of H. G. Wells, describing God as a "gaseous vertebrate?" Do we not hear the echoes of the voice of Professor Knight, cooperating with Professor Osborn, under the latter's direction, as, pointing to the primeval shagginess of this apish creature, he cries out: "This is our ancestor; this is the creature from which we evolved; this THING is bone of our bone, flesh of our flesh. We are stirred by HIS passions, urged on by HIS nameless instincts?"

It follows, of course, that a "gaseous vertebrate" could not and did not endow man with soul and free will and that such a THING as this could have no soul or free will. Man has existence, hence there is something which has brought him into existence. Reason compels him to affirm the existence of God as his origin or to accept the contradiction involved in the disproved theory of spontaneous generation, the chemic-lump, the apish THING.

Of course if there is no God, and no soul, and no free will, and nothing but a monkeyfied descent from the lemur, then it follows that conscience itself is a mere movement of atoms; that it cannot hold in check man's greed or his lust, his passions or his nameless instincts.

By whom can a soulless man, a THING evolved from an ape, be held accountable? For what law, except the law of fear, shall this soulless THING have respect? Without free will the gratifications of his every impulse

becomes his only objective. There are no laws that, in conscience, he, who is without conscience, must heed. This THING without soul, the prince of brute creation, is himself a brute, and the moral order ends.

Preaching this doctrine, the materialistic evolutionists, falsifying their unscientific deductions and misrepresenting the honest research of the laboratories, have so influenced popular education, including the text-books of schools and the formation of public thought through the press, that there is left scarcely any channel of public information through which does not flow the false conviction that man's origin as a descendant of the ape has been "scientifically demonstrated."

Haeckel, so frequently invoked by Wells without quotation marks, wrote with the same positiveness characteristic of Wells and on the same subject. He said, as we have seen, in "Welträtsel," p. 99: "In the last twenty years a considerable number of well-preserved fossil skeletons of men-apes and other apes have been discovered, and amongst them are all the important intermediate forms which constitute a series of ancestors connecting the oldest anthropoid ape with man."

There wasn't a single word of truth in this gratuitous and wholly false declaration, yet, as we have also seen, teachers and writers have swallowed it as if it were truth, and passed on its influence, just as Wells has done, so that the plain people, submitting to the brute force exerted by this faked doctrine of evolution, cannot fail to attach themselves to the doctrine of chaos, in proportion as they accept it.

If a man is a brute, a THING, whose origin and destiny are twelve earthy salts, why should he not live like a brute? Enrico Ferri, in his "Criminal Sociology," declares man cannot be responsible for his crimes for

the reason that those human acts which are believed to be more free morally, such as marriage, suicides, crimes or emigrations, are, on the contrary, subject to the influences of environment and vary with these influences. If our heredity be healthy and our environment comfortable, we must act well, we cannot help it; if it be ill, we must act ill; we cannot help it. We are THINGS! apish THINGS!

The Chemic Creed

Was not this the inspiration that caused Robert Blatchford to say: "Suppose a tramp has murdered a child on the highway, has robbed her of a few coppers and has thrown her body into a ditch. Do you mean to say that tramp could not help doing that? Do you mean he is not to blame—not to be punished? Yes, I mean to say all these things, and if all these things are not true this book is not worth the paper it is written on."

Joseph Husslein, in "Evolution and Social Progress," concludes that "Haeckel is right in denying free will if there is nothing in the universe but matter and force, and equally right is Blatchford when he draws from that supposition the inescapable conclusion that no criminal, no matter how vile and abhorrent his deeds, should ever be judged because of them."

This new "chemic creed," that out of the lowest clod man has developed in common with the toad and the cockroach, through the power of material evolution, free from the intervention of a God, rests squarely on a foundation compounded of the romance, invention and intervention of theorists who have been caught in the act of forging proof, of faking plates, of lying in the name of "science" in order to fool the gullible who

haven't time or training sufficient to examine the facts for themselves.

H. G. Wells, adding his brilliant contribution to the literature of gross materialism, was unable to protect himself from the trickery and subterfuge of Haeckel. How, then, can the average man or woman be expected to separate the true from the false?

One of the writer's assistants, a university graduate, a trained and a capable chemist who has been working with the writer for five years in The Globe Laboratory, and who is often at the writer's elbow, says: "But there's always Darwinism, Darwinism, Darwinism. How can you get away from the facts of Darwinism?" Even he, a man of scientific education, has accepted the Haeckel falsehoods concerning Darwin on the assumption that one scientist wouldn't lie to another, the same assumption which Wells may have acted upon in accepting Haeckel without question.

Perhaps no other subject has given rise to so much fiery controversy as this bold and sinister attempt to induce man to believe that not only is he a descendant of the ape, but that he is himself a true ape.

Leaping to their rash conclusions, the followers of this theory neither act nor speak like scientists. They demand that their theories shall be accepted on their word. If this is not intellectual tyranny, the autocracy of falsehood, the sovereign reign of deceit, what is it? And if it is this, why should Wells devote to it 103 pages of his "Outline of History?"

Science admits that it can find no cause of life existing upon this earth. Philosophy interrupts to remind science that the cause of life is not a scientific question, but a philosophical one, and that the cause of life must be looked for outside the earth. The creation of matter, the creation of life and the creation of the mind of man, of his intelligent soul, are not zoological problems.

Superstition and Intolerance

"The birth, both of the species and of the individual, are equally parts of that grand sequence of events which our minds refuse to accept as the result of blind chance." It may shock the atheistic reader who swallows the lemur story of the ape origin of man, as told by Wells, to learn who wrote that. Its author was none other than Charles Darwin. You will find it on p. 613 in Darwin's "The Descent of Man," 1896 edition, published by Appleton.

Followers of Haeckel and Wells have written the editor of the New York *Globe* denouncing as sheer superstition the writer's critical comments on the work of their idols. If it be superstition to accept as "verified facts" the ever-changing, ever-contradicting theories of materialistic evolution which during the past sixty years have already gone through a dozen changes, each of them equally dictatorial, equally intolerant, in its assurance of finality, then the writer pleads guilty to the charge.

Man's thoughts can't be put into a test tube, yet the writer has reason for believing he has thoughts. Man's soul can't be put under the microscope, yet the writer has reason for believing he has a soul. Wells wholly ignores the soul. To do otherwise would make it necessary to re-write the "Outline of History."

On the one hand we have the doctrine, God is a "gaseous vertebrate," man is a product of the "chemic-lump." The alternative of this, man is a creature of body and soul made in the image and likeness of God, asks for acceptance or rejection.

Wells accepts the former; countless millions accept the latter. Wells exercises the right to put his conclusions into circulation. Countless millions exercise a better right to reject them.

Wells' conclusions cannot be sound, for they are based on faith in the unreasonable and the false, and their consequences obviously lead to chaos. Wells' man is without an objective, blindly sprung from blind chance, moving blindly toward a blinder end. Countless millions are guilty of "superstition" for rejecting him, and the word "human" must be dropped from the language. There is no "human" race. It is simian.

CHAPTER XXIII

Evolution Upside Down

Evolution upside down.

Of course we know nothing of the methods of creation, and when we descend to details the complexities and confusions are found to be so irreconcilable with the old theory of monophyletic evolution that human reason is wholly unable to follow them. For instance take the case of the dominant character transmitted under the law of Mendel by the parent to the offspring and the recessive character which disappears under that law. The chromosomes carrying the dominant color factor, height factor, form factor, etc., reassert their influence in subsequent generations after a seeming suppression in the offspring of the second generation.

If round peas with green albumen were mated with wrinkled peas with green albumen—green being common to both—their hybrid's progeny would consist of three round with green albumen; and, if wrinkled peas with yellow albumen were also mated with wrinkled peas with green albumen—wrinkled being common to both—their hybrid's progeny would consist of three wrinkled peas with yellow albumen to one wrinkled with green albumen.

If round peas with yellow albumen were mated with wrinkled peas with green albumen—differing in two pairs of characters—the offspring were all round with green albumen. The recessive characters—round and yellow—had disappeared in the second generation.

But—when these offspring were bred from, in their turn, their progeny consisted of four groups bearing the characters, round and yellow, round and green, wrinkled and yellow, wrinkled and green.

If rose-combed fowl were mated with single-combed the offspring were all rose-combed, but when these rose-combed fowl were mated the offspring were again rose-combed and single-combed.

If agouti-colored mice were mated with chocolate-colored mice the offspring of the third generation consisted of agoutis, cinnamon-agoutis, blacks and chocolates. If one of these blacks were mated with a silver-fawn the offspring of the third generation consisted of blacks, blues, chocolates and silver-fawns, showing the operation of another pair of color factors not reckoned with in the beginning.

If gray rabbits were mated with black rabbits their hybrids were all gray, the black seemingly disappearing, but when the second generation of grays were mated the progeny were again grays and blacks. If gray rabbits were mated with albino rabbits the hybrid's progeny consisted of grays, blacks and albinos in the third generation.

White cattle have been shown to carry a hidden color factor, actually giving rise to black and red calves.

Thousands of experiments with cows, horses, sheep, hogs, poultry and other animals confirm the reappearance of recessive characters seemingly lost in the second generation only to turn up in the third.

Yet, when we come to man, the contradictions are baffling. If the descent of color in the cross between the negro and the white man followed the law of Mendel, the offspring of two first-cross mulattoes would be one black, two mulattoes, one white. But this is notoriously not so. The riddle is unanswerable though some day science may, with further knowledge of the chromo-

somes, throw light upon it. Worthy of expression is the thought that an ape chromosome in the human cell would manifest even a recessive character somewhere along the line of countless millions of human creatures, yet even the most degenerate savages are singularly free from the slightest superficial resemblance to any simian trait or character which science has been able to identify.

A most astounding variability is everywhere seen. Among the moths, for instance, there is such an abundance of varieties so distinct that they would be classified as specific forms but for the fact that all breed freely together. William Bateson, in his 1914 address on "Heredity," delivered as president of the British Association for the Advancement of Science, says on this point: "Naturalists formerly supposed that any of these varieties might be bred from any of the others." They tried the experiment but, alas, failed dismally. "Genetic analysis," says Bateson, "has disposed of all these mistakes."

Evolution, as the world has been taught to accept it, demands the acquisition of NEW CHARACTERS, though science now proves that if there is any evolution at all it consists in the LOSS of old characters. Here, too, Bateson is a stumbling block to the old school. Dismissing "the evolutionists" who were ready to believe that any pair of moths might produce any of the varieties included in the species, he says: "The appearance of contemporary variability proves to be an illusion. Variation from step to step in the series must occur either by the addition or by the loss of a factor. Now, of the origin of new forms by loss there seems to me to be fairly clear evidence, but of the contemporary acquisition of any new factor I see no satisfactory proof, though I admit there *are rare examples* which *may be so interpreted.*

"It was a commonplace of evolutionary theory that at least the domestic animals have been developed from a few wild types. Their origin was supposed to present no difficulty. The various races of fowl, for instance, all came from the Indian jungle fowl. So we were taught; but try to reconstruct the steps in their evolution and you realize your hopeless ignorance. To be sure there are breeds, such as Black-red Game and Brown Leghorns, which have the colors of the jungle fowl, though they differ in shape and other respects. As we know so little as yet of the genetics of shape, let us assume that those transitions could be got over.

"Suppose, further, as is probable, that the absence of the maternal instinct in the Leghorn is due to loss of one factor which the jungle fowl possesses. So far we are on fairly safe ground. But how about White Leghorns? Their origin may seem easy to imagine, since white varieties have often arisen in well-authenticated cases. But the white of White Leghorns is not, as white in nature often is, due to the loss of the color elements, but to the action of something which inhibits their expression. Whence did that something come? The same question may be asked respecting the heavy breeds, such as Malays or Indian Game. Each of these is a separate introduction from the East. To suppose that these, with their peculiar combs and close feathering, could have been developed from pre-existing European breeds is very difficult. On the other hand, there is no wild species now living any more like them. We may, of course, postulate that there was once such a species, now lost. That is quite conceivable, though the suggestion is purely speculative. I might thus go through the list of domesticated animals and plants of ancient origin, and again and again we should be driven to this suggestion, that many of their distinctive characters must have been derived from some wild original

now lost. Indeed, to this unsatisfying conclusion almost every careful writer on such subjects is now reduced. If we turn to modern evidence the case looks even worse. The new breeds of domestic animals made in recent times are the carefully selected products of recombination of pre-existing breeds. Most of the new varieties of cultivated plants are the outcome of deliberate crossing. There is generally no doubt in the matter. We have pretty full histories of these crosses in gladiolus, orchids, cineraria, begonia, calceolaria, pelargonium, etc. A very few certainly arise from a single origin.

"The sweet pea is the clearest case, and there are others which I should name with hesitation. The cyclamen is one of them, but we know that efforts to cross cyclamens were made early in the cultural history of the plant, and they may well have been successful. Several plants for which single origins are alleged, such as the Chinese primrose, the dahlia, and tobacco, came to us in an already domesticated state, and their origins remain altogether mysterious. Formerly single origins were generally presumed, but at the present time numbers of the chief products of domestication, dogs, horses, cattle, sheep, poultry, wheat, oats, rice, plums, cherries, have in turn been accepted as "polyphyletic" or, in other words, derived from several distinct forms. The reason that has led to these judgments is that the distinctions between the chief varieties can be traced as far back as the evidence reaches, and that these distinctions are so great, so far transcending anything that we actually know variation capable of effecting, that it seems pleasanter to postpone the difficulty, relegating the critical differentiation to some misty antiquity into which we shall not be asked to penetrate. For it need scarcely be said that this is mere procrastination. *If the origin of a form under domestication is*

hard to imagine, it becomes no easier to conceive of such enormous deviations from type coming to pass in the wild state. Examine any two thoroughly distinct species which meet each other in their distribution, as for instance, Lychnis diurna and vespertina do. In areas of overlap are many intermediate forms. These used to be taken to be transitional steps, and the specific distinctness of vespertina and diurna was on that account questioned. Once it is known that these supposed intergrades are merely mongrels between the two species the transition from one to the other is practically beyond our powers of imagination to conceive. If both these can survive, why has their common parent perished? Why, when they cross, do they not reconstruct it instead of producing partially sterile hybrids? I take this example to show how entirely the facts were formerly misinterpreted."

On the matter of reconstructing the various stages of evolution of any modern species, the horse, for instance, beginning with the very small animal and gradually sifting out slightly larger forms until the progressive series starting with a creature the size of a squirrel ends in a full-grown horse, Bateson is equally heretical. He says: *"In passing let us note how the history of the sweet pea belies those ideas of a continuous evolution with which we had formerly to contend. The big varieties came first. The little ones have arisen later, as I suggest, by fractionation. Presented with a collection of modern sweet peas, how prettily would the devotees of continuity have arranged them in a graduated series, showing how every intergrade could be found, passing from the full color of the wild Sicilian species in one direction to white, in the other to the deep purple of 'Black Prince'; though happily we know these two to be among the earliest to have appeared."*

Terrific indeed are the complications to be reconciled when man seeks to penetrate the mystery of creation, yet as new data are compiled the solution of the problem grows more and more complex and all the old popular notions of a simple single cell gradually acquiring an ascending complexity have to be abandoned. Again we must call upon the analytic acumen of the most brilliant apostle of evolution now living, to show how radically the old views, still taught in our universities and through popular magazines, have changed. Startling are the words of Bateson: "We have to reverse our habitual modes of thought. At first it may seem rank absurdity to suppose that the primordial form or forms of protoplasm could have contained complexity enough to produce the divers types of life. But is it easier to imagine that these powers could have been conveyed by extrinsic additions? Of what nature could these additions be?

"Additions of material cannot surely be in question. We are told that salts of iron in the soil may turn a pink hydrangea blue. The iron cannot be passed on to the next generation. How can the iron multiply itself? The power to assimilate the iron is all that can be transmitted. A disease-producing organism like the pebrine of silk-worms can in a very few cases be passed on through the germ cells. Such an organism can multiply and can produce its characteristic effects in the next generation. But it does not become part of the invaded host, and we cannot conceive it taking part in the geometrically ordered processes of segregation. These illustrations may seem too gross; but what refinement will meet the requirements of the problem, that the thing introduced must be, as the living organism itself is, capable of multiplication and of subordinating itself in a definite system of segregation? That which is conferred in variation must rather itself be a change—not

of material but of arrangement, or of motion. The invocation of additions extrinsic to the organism does not seriously help us to imagine how the power to change can be conferred, and if it proves that hope in that direction must be abandoned, I think we lose very little. By the rearrangement of a very moderate number of things we soon reach a number of possibilities practically infinite.

"That primordial life may have been of small dimensions need not disturb us. Quantity is of no account in these considerations. Shakespeare once existed as a speck of protoplasm not so big as a small pin's head. To this nothing was added that would not equally well have served to build up a baboon or a rat."

We shall speak shortly of the artistic gifts of the cave men, certainly more highly developed than the artistic gifts of the average modern man. Why do all men not share in these gifts? Why do all men not share in the mathematical, the analytical, the philosophical gifts? Why have all men *lost* so much that some outstandingly conspicuous geniuses possess?

The old Christian doctrine is that original sin, with the blighting consequences of the fall of man, have darkened his understanding, by clouding it, stopping it down, even though in each generation there rise to the surface isolated leaders of art, philosophy, invention and all the other peculiarly human characters as if to remind man of the riches he has lost by his fall.

It is not strictly scientific to infer that the taint of original sin constitutes the suppressing factor which prevents the human gifts from unfolding in all men alike. Yet Bateson, who rejects all such "superstition" and "mysticism"; who dismisses "sin" as a thing unthinkable, comes close to this idea. He says: "I have confidence that the artistic gifts of mankind will prove to be due not to something added to the makeup of an

Courtesy Zoological Society.
Photograph by Edwin R. Sanborn.

Excellent view of chimpanzee countenance said to bear a resemblance to human face. Man might look like this were it not for the soul which hundreds of millions of intelligent beings believe was created in the image and likeness of God. Compare ear and brow with ear and brow of orang.

ordinary man but to the absence of factors which in the normal person inhibit the development of these gifts. They are almost beyond doubt to be looked upon as releases of powers normally suppressed. The instrument is there, but it is 'stopped down.'" *What stopped it down?*

On the subject of man's origin in the monkey Bateson is peculiarly silent, yet he is very positive in identical instances. Here are his words: "We see no changes in progress around us in the contemporary world which we can imagine likely to culminate in the evolution of forms distinct in the larger sense. By intercrossing dogs, jackals, and wolves new forms of these types can be made, some of which may be species, but I see no reason to think that from such material a fox could be bred in indefinite time or that dogs could be bred from foxes"—*or men from monkeys!*

CHAPTER XXIV

Those "Six Days" of Creation

Those "six days" of creation—The geological clocks—The nebular hypothesis—The evidence of light—The evidence of water—The evidence of land—The evidence of plants—The evidence of sun, moon and stars—The evidence of fish and fowl—The evidence of beasts.

It has been the fashion among certain higher critics to focus an intense emphasis upon the Six Days of creation as recorded by the Mosaic narrative. They insist that each day shall be fixed literally, mathematically and astronomically as a period of twenty-four hours by the clock, notwithstanding the fact that the Mosaic word for "day" means an indefinite cosmic period of time, a while.

The scriptural use of the word "day" may mean just as much or just as little as any arbitrary chronology may demand, yet the parallel between the chronological order of the Mosaic narrative of creation and the most advanced discoveries of natural science is so marvelous that it inspired the great Ampère to observe: "Either Moses knew as much about science as we, or else he was inspired."

The Princeton biologist, Edwin Grant Conklin, takes issue with Thomas Carlyle when the latter declared: "I have known three generations of Darwins, atheists all."

"The doctrine of evolution," declares Conklin ("The Direction of Human Evolution," p. 210), "neither affirms nor denies the existence of a God." He sees no conflict at all between the biblical account of creation

and modern science. He makes no attempt at any subtle reconciliation of geology and Genesis or of evolution and Revelation, yet he is very positive concerning the Six Days of Creation. He says (p. 206): "I do not believe that the Bible teaches evolution or gravitation or the undulatory theory of life; nor on the other hand do I believe that it contradicts these generalizations of science. The simple but majestic language of the creation story tells to all people of all grades of intelligence that back of the creature there is a Creator. No intelligent person now maintains that it (the first chapter of Genesis) teaches that all things were made in six literal days; we could not if we would maintain that it teaches the exact number and sequence of geologic ages; why should anyone attempt to maintain that it teaches the exact process of creation?"

Professor Conklin even refers to the church fathers, St. Augustine and St. Thomas Aquinas, who believed in a kind of evolution, or thought they did.

He indicates quite clearly that he is rather partial to the monkey theory by referring bitterly to those who bitterly denounce it and who, therefore (p. 208), "are sorely puzzled if required to give some precise idea regarding the process by which they conceive that God created man." On the other hand he says reverently (p. 221): "And yet where science ends faith begins, and like the child or the savage, the philosopher or scientist may still say: 'In the beginning—God.' "

The theory of evolution is not per se on trial. The unscientific pretensions of so-called scientists who fabricate preposterous compounds and classify them as "evidence" are not on trial—now. Their trial is a thing of the past. They have been convicted. Haeckel's conception of God as a gaseous vertebrate is pronounced by Conklin "gross and blasphemous." Perhaps Conklin is not a judge, but he is "now recognized

as one of the foremost of living biologists." His judgment is at least worthy of respect for he pretends to finality in nothing.

The Geological Clocks

If you will pile into one heap the most highly probable theories of geology, palæontology, zoology, biology, and astronomy, you will find in that heap an uncanny agreement with the Bible's story of creation. The "little while" of time as compared with the immensity of eternity may mean 10,000 years or 10,000,000 years. Gilbert fixes the age of man at 10,000 years, Osborn at 500,000 years, Draper at 250,000 years; M. Joly emphasizes the demand of geologists for 10,000,000 years. As for the alleged age of the Neanderthal man, Professor Arthur Keith, of the Royal College of Surgeons, heretofore quoted, says: *"We are compelled to admit that men of modern type had been in existence long before the Neanderthal type."* Professor Dwight of Harvard went so far as to say: "For my part I believe the Neanderthal man to be a specimen of a race not arrested in its upward climb but thrown down from a higher position." This is degeneration from a higher level, not ascending evolution. Instead of a missing link between an ape and man the Neanderthal becomes a fallen creature, a degraded creature. Wells would make him exalted above the ape. The facts exposed him for what he was—a long step down. Even in John Lubbock's day it had been established that the Neanderthals were not alone in the world but were contemporaneous with a higher race from which they represented a departure downward.

Southall, in his "The Recent Origin of Man," contended for 6,000 or 8,000 years. G. F. Wright, the au-

thority on glacial conditions, testifies to the unreliability of geological clocks as time-pieces. In his "The Origin and Antiquity of Man" he advances proof to show that the entire glacial epoch did not exceed 80,000 years. "The portion of this epoch during which man existed," he says, "cannot be less than 10,000 and need not be more than 15,000 years." The geologist Prestwich limits the entire glacial period to but 25,000 years in his "Story of the Earth and of Man." Professor Penck calculates the time which has elapsed since North America rose out of the waters (since the glacial period) as not less than 5,500 and not more than 7,500 years, yet the same professor stretches the length of the glacial period sufficiently to allow 250,000 to 500,000 years for the antiquity of man in Europe.

Professor Driver, in his "Genesis," approximates 20,000 years as the maximum antiquity of man.

As for discrepancies in time, they are so many and so marvelous when the scientists begin to set their geological clocks that there can be no quibbling when one examines the biblical "Six Days" as firstly, secondly, thirdly, fourthly, fifthly, sixthly.

According to Lord Kelvin, the earth must have rotated with double its present rapidity 7,200,000,000 years ago. That would make it very old indeed.

Thomson estimates that the earth's crust became solid less than 1,000,000,000 years ago.

O. Fischer fixes the age of the world at 33,000,000 years.

Mellard Reade and H. G. Darwin attempt to show that the world is 100,000,000 years old.

The duration of the geological eras simply defies measurement. We know that Niagara Falls has receded about 12 kilometres since the Diluvial glacial period. Measuring its annual recession Lyell demonstrates the entire period of recession to cover 36,000

years. The corrections of Gilbert and Woodward based on later observations have reduced Lyell's figures to 7,000 years.

Geological eras cannot be measured by the denudation of the drainage basins of rivers. The Nile lowers its level about one meter in 17,000 years. The Po accomplishes as much in 2,400 years. The Indian rivers effect the same result in 5,200 years. The streams of Central Europe on the other hand require 164,000 years to do what the River Po does in one-seventieth the time.

Calculations based on the cooling process of the earth give it an age of 30,000,000 years. Calculations based on the theory of radio-activity give it an age of less than 6,000,000,000 years.

A study of all the systems of measurement, in each of which successive groups of scientists have pointed out gross errors and miscalculations, results in the progressive reduction of the number of years ordinarily assigned to the earth's antiquity. For instance in the recession of waterfalls on the Mississippi River in Minnesota, Winchell came to the astonishing conclusion that this noble stream has required not more than 8,000 years to excavate its course.

In estimating the age of the cultural remains of Diluvial man the thickness of the layers of clay pressed down as dust in the interior of protected caves is employed. An example is the cave Teufelsloch at Stramberg, Moravia, which contains traces of man ascribed to the lower layer of the palæolithic age. Near the entrance of the cave the thickness of the uppermost layer, which extends back to late pre-historic periods, measures 30-70 cm. Below this is found cave clay 30-50 cm. in depth with the remains of post-glacial prairie animals and cattle. Still lower is found 30-40 cm. of earth with the remains of glacial prairie animals. The last layer contains most of the traces of man upon

which is based the estimation that the interval since man's first appearance must be fixed at from 8,000 to 10,000 years.

The calculations based on the deposits made by rivers are worthless, as an avalanche, a flood or some other catastrophe could bring more matter into the river in one day than would otherwise be deposited in a hundred years. Nevertheless Heim fixes the post-glacial period at 16,000 years as a result of his observations on a moraine in the lake of Lucerne. Bruckner, studying the alluvial deposits of the Aar, arrives at 15,000 years. Morlot demonstrates that the Finiere required not more than 10,000 years to form the cone-shaped bank at its mouth on the lake of Geneva.

In this bank Roman bricks were found at a depth of 1.2 meters; earthen vessels and a pair of bronze tongs were found at a depth of 3.2 meters. At a depth of 6 meters rude pottery and the bones of some domestic animals were discovered. Thus Schaaffhausen gives the age of man as 10,000 to 15,000 years. Certain it is that instead of the hundreds of thousands of years demanded by the materialist the scientific probability approaches ever closer to 10,000 years, *thus showing a tendency to return to the chronology of the Bible, according to which the Jews reckon that 5,682 years have elapsed (1921) since the creation of Adam.*

At any rate there was a beginning. Science suggests that the beginning consisted of immense drifts of atoms or ions wandering through vast reaches of space. Science suggests that these drifts slowly but surely merged into luminous nebula. Science is doubtful as to whether the original nebula consisted of loose swarms of stone-cold meteorites developing heat eventually by the process of self-condensation, but science is quite certain that from a glowing, luminous, nebulous chaos the stellar

systems leaped. The Bible merely says: IN THE BEGINNING GOD CREATED HEAVEN AND EARTH.

The Nebular Hypothesis

In making a scientific comparison with the scriptural narrative obviously the place to begin is in the nebular hypothesis, although during the past sixty years the nebular hypothesis, which had previously been accepted by astronomers without question, has been so modified that Joseph Barrell, professor of structural geology in Yale College, declares: "Not much remains of the original conception of Laplace. The nebular hypothesis is now on the defensive and has lost standing during the past generation."

When asked by the Anglican Bishop Ellicott regarding the mention of "light" in Genesis previous to the first mention of the sun, Clerc Maxwell, originator of the electro-magnetic theory of light, prudently counselled the bishop against pinning any text of Scripture to a conjectural hypothesis, even though it chanced to be his own. "The rate of change of scientific hypotheses," he observed, "is naturally much more rapid than that of biblical interpretations, so that if an interpretation is found on such an hypothesis, it may help to keep the hypothesis above ground long after it ought to be buried and forgotten." (See "Evolution and Social Progress," pp. 112 and 113, and "Life of Clerc Maxwell," p. 394.)

Nevertheless the Mosaic account tallies with the chronological development of the earth even as it is presented by scientific hypotheses. With regard to the scripture "myth" of creation the idea persists that the first chapter of Genesis cannot be taken seriously by scientific men, yet the facts are that it has been taken most seriously by many eminent scientists. St.

Jerome, one of the foremost of scripture scholars, laid down a principle that must ever guide the student. He stressed the point that certain things in the sacred writings may be said "according to the ideas of time or according to the appearance of things rather than according to the actual truth." Even today we speak of "the rising and the setting of the sun."

The eloquence and clarity of Husslein on the subjects of "how the earth was made" and "how life appeared on earth" are worthy of profound study. Penetrating the smug assurance of the materialist who scoffs at the biblical narrative of creation they lift the thoughts of man beyond the "scientific" cloud in which he moves blindly, and aid his vision as if by a powerful glass which brings into the foreground in sharp detail the vague and shapeless masses that are found upon examination to be no Frankensteins at all, but beautiful and wholly scientific concepts.

The Evidence of Light

Both the earth and its now dead moon had passed through fire, and though cooling, the earth's crust was still hot and there were fires in its heart. The moon had no "atmosphere" but science tells us that on the surface of the earth were great masses of steaming, hissing, boiling vapor, turbulent vortices of clouds miles in depth. No light could penetrate this stormy curtain. Such is the record of science. See how it agrees with the Bible—AND THE EARTH WAS VOID AND EMPTY, AND DARKNESS WAS UPON THE FACE OF THE DEEP; AND THE SPIRIT OF GOD MOVED OVER THE WATERS.

The surface of the earth was indeed a waste of waters.

"Then," says the Yale geologist, "rain ever descend-

ing from the shield of perpetual cloud, but never heretofore reaching the bottom of the atmosphere, at last began to splash on the hot surface of the earth. The raindrops at first were dissipated by contact and sent flying as scattered molecules of gas. But, owing to the low conductivity of rocks, the transition stage was very brief, and perhaps even in a few thousand years from the time when the crustal congelation of the earth had taken place a permanent ocean of acid water began to rest upon the surface.

"For a while the balance swung, as one section or another of the crust was broken through and lavas would pour out abundantly. Rapidly, however, from the geological standpoint, as the surface cooled the atmosphere of water vapor condensed in a never ceasing deluge, until an ocean probably universal in its extent had gathered to a mean depth of several thousand feet." Says Husslein: "Now, and now only could there be question of light on the face of the earth. The condensation of the great zone of vapor that had encompassed this watery world made possible at last the first admission of light. At this same point, too, the Scripture makes its first mention of light: AND GOD SAID: BE LIGHT MADE. AND LIGHT WAS MADE."

What follows is not theology; it is science. Yet in marvelous harmony with the scientific theories formulated in explanation of the birth of the world the Mosaic narrative seems to agree in minute detail with the scientific theory of light.

According to the Bible the sun had not been created when the first light appeared. Science, with no thought of supporting the Bible, but with many demands that the Bible should be broken down, tells us that the first light consisted of the faint, luminous glow of the nebular masses which were in no sense fiery planets or suns. "Even when the sun had probably been formed,"

says Husslein, "and its light was first introduced through the blanket of mists that covered the earth, it could not have been described other than as a diffusion of faint radiance. It was light but not a sun that would have been visible here on the watery surface of the terrestrial globe. It has even been held that the sun itself was at this time still but a cloudy volume of nebulous or gaseous matter diffusing a comparatively weak light through its own dense atmosphere."

Why did Moses speak of "light" before he spoke of the sun, unless he had some vision of the pre-solar globe which so many centuries later was advanced by so many nebular hypotheses? One would assume that Moses anticipated the criticism that "science and religion are out of harmony with each other," by providing this profoundly subtle chronology of the principal events of creation.

Of equal significance, when viewed from its scientific aspects, is the next scriptural reference to what followed: "AND GOD SAW THE LIGHT THAT IT WAS GOOD; AND HE DIVIDED THE LIGHT FROM THE DARKNESS. AND HE CALLED THE LIGHT DAY, AND THE DARKNESS NIGHT; AND THERE WAS EVENING AND MORNING ONE DAY."

Science had not then discovered that the earth was round, a revolving globe, yet today all scientific theories, some of which must approach the truth even though so many are now admitted by science to be false, rest comfortably under the shadows of the preceding Scripture passage. The mists were still heavy and such exterior light, whether it came from the solar nebula or from the sun, penetrated them with comparatively feeble glow, such, perhaps, as one now perceives in storm, even though beyond the storm cloud the sun shines fiercely.

The probability is that this light, distinguishing day from night, even though faintly diffused through the mists, originated not with the solar nebula, but in the sun itself, for the reason that the glow by this time was more pronounced upon one side of the revolving earth than upon the other, so that the contrast of night was sufficiently defined to draw a line between the two. Had the light not come from the sun the nebular glow doubtless would have been equal in both hemispheres and there could have been no division between day and night.

The Evidence of Water

Moses had none of the advantages of the modern geologist in arriving at the graphic pictures of the separation of land and water which he describes in its correct chronological order, in strict accordance with the scientific opinions of the twentieth century. "AND GOD SAID LET THERE BE A FIRMAMENT MADE AMIDST THE WATERS: AND LET IT DIVIDE THE WATERS FROM THE WATERS."

The surface of the earth, it must be remembered, was under these waters, and what is now the air was filled with water in the form of vapor. The terms "air" and "atmosphere" must not be confounded. Chamberlain holds that there was a time when the earth was bathed in no envelope of air that could be breathed. Certainly this envelope of vapors contained such deadly poisons as sulphur dioxide, carbon monoxide, hydrocyanic fumes and the many other toxic gases of combustion and volatilization.

It is the clearing up of the air that the Bible describes when the vaporous waters above the earth were separated by condensation from the fluid waters upon the earth's surface. "The solid globe," says Husslein,

"was spanned at length with what the sacred writer calls 'the firmament,' although the heavenly luminaries did not as yet shine forth in it. It was evidently meant to describe the atmosphere 'amidst the waters.' Between the canopy of the clouds through which the light was diffused with increasing brightness, and the ocean that hitherto had covered the earth, there henceforth existed what the translator has rendered by the English word 'the firmament.' It was the atmospheric space between the two worlds of water."

The Evidence of Land

The geologists are agreed among themselves as to what next took place upon the earth's crust when the ocean basins were formed by the sinking of broad areas of the earth's surface and the mighty eruptions of highlands and mountains. Into the deepened basins the waters poured, and the great oceans and seas were separated from dry land.

Perhaps Moses could not have known what the modern geologist knows through the instrumentality of modern science, but what he knew was sufficient to inspire a repetition of the ejaculation of Ampère: "Either Moses knew as much about science as we, or else he was inspired."

God also said: "LET THE WATERS THAT ARE UNDER THE HEAVENS BE GATHERED TOGETHER INTO ONE PLACE: AND LET DRY LAND APPEAR."

"Thus," says Husslein, "in every line and letter do our most scientific conclusions conform here with those of the sacred writer as he pictures the first making of our planet with its hemispheres of light and darkness, its gathering oceans and its rising continents."

The Evidence of Plants

Professor Lorande Loss Woodruff, referring to the appearance of plant life upon the earth before the sun could shine through the mists, mentions the existence of life elements upon the earth "before the atmospheric vapors admitted a regular supply of sunlight."

There seems to be no doubt in the minds of scientific men that plants and trees flourished upon the earth under such conditions. Not only is Woodruff of this opinion ("The Evolution of the Earth," p. 105) but John Smyth ("Genesis and Science," p. 40) says: "The plants and trees composing the carboniferous strata may have flourished luxuriously on the margin of shallow seas long before the sun deserved the name of a great light."

Obviously before the earth was ready to support animal life there had to be vegetable life on which animal life could feed. As animals have to eat today, so did they always have to eat. Even the apes remain vegetarians, and it is a noteworthy fact that the stomachs of all the chimpanzees and gorillas shot by explorers are found to contain leaves, berries, tender bark and other forms of vegetable food.

In this strange chronology vegetable life appears in the precise location in the biblical narrative of creation to which modern science must assign it. "AND THE EARTH BROUGHT FORTH THE GREEN HERB, AND SUCH AS YIELDETH SEED ACCORDING TO ITS KIND, AND THE TREE THAT BEARETH FRUIT, HAVING SEED EACH ONE ACCORDING TO ITS KIND."

The Evidence of Sun, Moon and Stars

How did Moses know what the scientists now admit? How did Moses know light existed in the universe be-

fore the sun, moon and stars beamed upon the earth from the heavens? Why did Moses do the very thing that he never could have been expected to do had he received no divine revelation of the truth, when he reported the creation of plant life before mentioning, even remotely, the sun, the moon and the stars? Why did he begin with the creation of light and then go on in a humanly inexplicable line of scientific sequence, arriving at plants and trees before making any reference to the celestial bodies?

The incredulous would still insist upon the impossibility of such order if science itself had not confirmed the sequence.

"AND GOD MADE TWO GREAT LIGHTS: A GREATER LIGHT TO RULE THE DAY; AND A LESSER LIGHT TO RULE THE NIGHT; AND THE STARS."

Give a baby two wooden blocks, each of them bearing the numbers 1 and 2 respectively. By accident the baby might place the two blocks side by side on the floor in their proper order. But give the same baby ten blocks numbered from 1 to 10 and the chances are one in many thousands that it will string them out numerically, beginning with number 1 and ending with number 10.

The Evidence of Fish and Fowl

"No scientist," says Husslein, "can question the accordance between the sequence of the remaining epochs of creation and that of the fossil evidence written in the rocks. The Book of Revelation reads like a perfect transcript from the Book of Nature. Yet the pages of this vast volume were not laid open in the Mosaic days, to be read as now we can read them."

"God also said: LET THE WATERS BRING FORTH THE CREEPING CREATURE HAVING

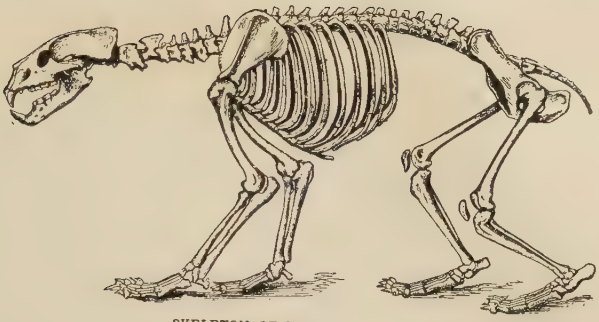
LIFE, AND THE FOWL THAT MAY FLY OVER THE EARTH UNDER THE FIRMAMENT OF HEAVEN.

"AND GOD CREATED THE GREAT WHALES, AND EVERY LIVING AND MOVING CREATURE, WHICH THE WATERS BROUGHT FORTH, ACCORDING TO THEIR KINDS, AND EVERY WINGED FOWL ACCORDING TO ITS KIND."

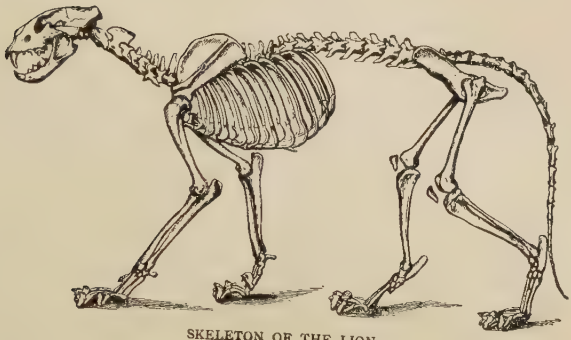
"Here," says Sir Bertram Windle, "we arrive at the second mile-stone in the path of progress, for not only do we find ourselves confronted by life but for the first time with sentient life, and, it is described at the place where science tells us that it might be looked for.

" 'Now here we have another agreement between the Scriptural and scientific accounts, for the evolutionists will certainly not deny that zoological life seems first of all to have originated in the sea; that it was preceded by the appearance of vegetable life; that fishes did come before birds and that the gigantic saurians—which it is suggested may have been intended by the Hebrew word commonly but probably incorrectly translated "whales"—were a very remarkable feature of the period of geological time at which we have now arrived, since some of them attained a length of at least fifty feet. It has also been pointed out that it is somewhat remarkable that the writer, of course unfamiliar with science, should have grouped birds with fishes and not with mammals, which would have seemed more natural. Yet in doing so he is acting quite correctly.' " ("The Church and Science," pp. 181, 182).

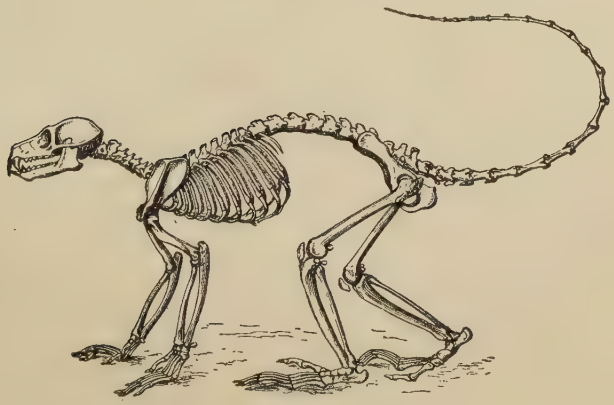
"The inspired writer," comments Husslein, "was not to write a text-book of science, a discussion of vertebrates and invertebrates. His picture was necessarily to be given in strong, bold lines, and in a language intelligible to all his hearers through the course of ages.



SKELETON OF THE POLAR BEAR.



SKELETON OF THE LION.



SKELETON OF THE RUFFLED LEMUR.

Note the skeletons of the lemur, polar bear and lion. These unrelated beasts "resemble" each other more closely than ape and man, yet this "resemblance" is wholly ignored by the ape-manologist. The skeleton of the mandrill, or rib-nosed baboon, is in many respects, especially in the natural walking posture, similar to the skeleton of all the anthropoid apes. What conclusion does the ape-manologist draw from these "resemblances"? Why are they never referred to in any of the text-books?

Such was God's plan. Yet the broad succession of life-forms in the Scripture account is accurately the same as that which science teaches us it must have been; first vegetative organisms; then the primitive sea-worms, fishes and saurians; next the birds, and finally the fully developed forms of the land animals preparatory to the coming of man."

The Evidence of Beasts

"And God said: LET THE EARTH BRING FORTH THE LIVING CREATURE IN ITS KIND, CATTLE AND CREEPING THINGS, AND BEASTS OF THE EARTH, ACCORDING TO THEIR KINDS."

"It should again be understood, on the chronological hypothesis, which, as we have seen, is but one method of interpreting the narrative of the Creation, that as Genesis is not intended for a detailed scientific account, so science in its turn has only the most fragmentary records to offer. Thus it is stated that the fossils of reptiles are found before those of birds; it does not follow that reptiles actually preceded the birds in the order of direct creation or of evolution. The earliest birds, more delicate in structure, might more readily have been destroyed so that fossil traces could not be found of them. Here our knowledge is so utterly inadequate. Hence there could be no question, on such a supposition, of affirming any contradiction. We have but begun our discoveries, and we shall never be able scientifically to establish all the data for the beginnings of life. The earliest records, in fact, are almost completely destroyed, like the writings that have been effaced from a school-boy's slate, with but a curve or a dot remaining, here or there. It is the height of ab-

surdity to speak of these questions with apodictic certainty, where even guessing is hazardous.

"One other fact must still be stated here, and that is that the rocks of the earth themselves bear no direct evidence of any evolution. The various types, even among the early invertebrates in the Cambrian formation, appear 'clearly separated into all the families and most of the classes which exist at present.' The same is true of the vertebrates. The fishes in the lower Silurian formation appear just as clearly separated from the invertebrates. 'There are numerous quite different types existing, but separate from the beginning.' "

"The first birds, though with certain reptilian characteristics, cannot be shown to have really descended from any particular reptile. The earliest mammalia are clearly differentiated, and we find them at the eocene period 'almost as fully typified and as sharply defined as today, particularly such as were of unusual size or of peculiar traveling powers or habits of life.' " (See Steinmann, "Die geologischen Grundlagen der Abstammungslehre," p. 233.—Frank, p. 33).

"That higher classes are descended from these is therefore 'in no single case other than probable,' or as Darwin says in the words previously quoted, we cannot prove the evolution of even one single species into another. ("Life and Letters of Charles Darwin," I, p. 210).

"All that we can say is that the various clearly distinct species appear abruptly in their geological layers, as definitely characterized types. Sir William Dawson quite correctly writes ("Modern Ideas of Evolution"):

" 'The compound eyes and filmy wings of insects; the teeth, bones and scales of batrachians and fishes; all are as perfectly finished, and many quite as complete and elegant as in the animals of the present day. . . .

At one time it is broad-leaved forest trees that enter upon the scene, altogether different from those that went before; at other times, lizard-like reptiles, birds and mammals, each stamped at its first coming with the essential characteristics of its class as we know it today; SO THAT IT IS IMPOSSIBLE, EXCEPT BY VIOLENT SUPPOSITIONS, TO CONNECT THEM GENETICALLY WITH ANY PREDECESSORS.'

"Hence it was possible for a really eminent biologist, such as Professor Fleischmann certainly must be reckoned, entirely to reject the evolutionary theories in the day of their full glory. Hence, also, it was possible for other independent thinkers to come to the conclusion that the facts of nature do not give any evidence of gradual evolution, but rather must be explained away in favor of it. On this important point Hull writes:

" 'Attempts have been made to arrange in order the gradual evolution of the different species from the lower to the higher, and from the simpler to the more complex. The genealogical tree thus produced, both for the plant and the animals orders, almost overwhelms the mind with a conviction of its truth, UNTIL WE BEGIN TO REALIZE HOW MUCH SPECULATION AND GUESSWORK HAVE BEEN MIXED UP WITH FACT in the formation of the pedigrees; and moreover, how difficult it is to imagine the process by which the larger divisions of vegetable and animal types can have passed over the dividing line between one and another.

" 'A student who recently took his doctorate of biology in Berlin told me that on account of these difficulties and gaps the most profound of his professors, while adhering faithfully to the evolution theory AS A THEORY, acknowledged that as soon as one begins to examine the process in detail, the difficulties are simply

unsurpassable, and the transitions become in some points even unthinkable. Hence we are far from having reached the point where the evolution-theory is even promising to pass from the region of the hypothesis into the region of ascertained fact.'

"To the Scripture scholar, we need not repeat, it is a matter of indifference whether the successive species hitherto described in the Sacred Text were created directly, or through the even more wonderful medium of evolution, according to laws divinely foreordained and imprinted on the originally created elements. Certain restrictions, as we have seen, are to be made, which science and reason postulate, nor do we wish here to anticipate what is still to be said of the specific creation of the first human beings.

"The old theory of a gradual transformation of species, we have also shown, was widely discarded by scientists at the beginning of the twentieth century in favor of the 'saltatory theory' popularized by De Vries, which calls for the sudden and not for the gradual appearance of the new species. It was thus a complete reversal of the position of the older evolutionists, once considered unassailable. For the present it suffices to have pointed out what agreement there exists between the facts of science and the actual sequence of creative acts in the order in which we find them recorded in the Scripture. The comparison draws from Col. Turton the following striking remarks: 'The points of agreement between Genesis and science are far too many and far too unlikely to be due to accident. They are far too many; for the chances against even eight events put down in their correct order by guesswork is 40,319 to 1. And they are far too unlikely; for what could have induced an ignorant man (i. e., ignorant of modern science) to say that light came before the sun or that the earth once existed without any dry land."

CHAPTER XXV

The Evidence of Man

The evidence of man.

The creation of man follows in the last place, precisely where science demands that it should follow. "AND GOD CREATED MAN TO HIS OWN IMAGE: TO THE IMAGE OF GOD HE CREATED HIM: MALE AND FEMALE HE CREATED THEM." What kind of man did He create? Alfred Russell Wallace says ("The World of Life," p. 403): "Man is the one being who can appreciate the infinite variety and beauty of the life world, the one being who can utilize in any adequate manner the myriad products of its mechanics and its chemistry. Man is the only being capable, in some degree, of comprehending and appreciating the fore-ordained method of a supreme mind. That is surely the glory and distinction of man—that he is continually and steadily advancing in the knowledge of the vastness and mystery of the universe in which he lives." Again he says (p. 423): "We are forced to the assumption of an infinite God by the fact that our earth has developed life and mind and ourselves."

Practically all the skeletal evidence, characterized as Neanderthal, exhibits features in many respects superior to some of our modern types. The Piltdown skull itself, to the despair of the theorists, presents "NO PROMINENT OR THICKENED RIDGE ABOVE THE ORBITS." It was an unfortunate day for the ape-man evolutionist when he began to stress those

supra-orbital ridges as proof of relationship to a simian ancestor. Always he has insisted that the lower the race and the closer to the ape the more marked the supra-orbital ridges. This, of course, means that the white man of Europe is actually nearer to the ape than the negro of Africa and the Chinaman of Asia. The black and yellow races, were they only conscious of the fact, could draw a stunning conclusion from those supra-orbital ridges.

You are not asked to take the writer's word for this. On the ground of possible bias you have every right to exclude his testimony, but there can be no suspicion of bias when Professor Arthur Keith speaks, for he holds fast to the belief that he himself is a descendant of the ape. He says, as we have already seen ("The Human Body," 1910, pp. 177-179): "In the typical African negro the forehead as a rule is high and the supra-orbital ridges ARE DISTINCTLY LESS PROMINENT THAN IN THE EUROPEAN. THE SUPRA-ORBITAL RIDGES OF THE CHINAMAN ARE LESS DEVELOPED THAN IN THE EUROPEAN." But, to go back to the cave man!

Many of the oldest skull fronts are spoken of as "steep" or "high." Primitive man was a SUPERIOR BEING. His mental gifts as recorded in the art objects discovered with many of his remains have been described by Dr. James J. Walsh in a manner which Professor Osborn, as we have seen, characterizes as "scholarly." A single sentence from the paper by Walsh to which Osborn refers is eloquent: "In the face of all the evidence we have brought forth, the long-cherished notion of the cave man as one little higher than the brute must be replaced by the recognition of him as an artist of intelligence and rare ability."

"The cave man, according to theory," says Walsh, "has been pictured as little higher than the beast; now

Courtesy Zoological Society.
Photograph by Edwin R. Sanborn.

Another view of Orang, depicting this creature in "thoughtful" mood. The sensitive upper lip is almost Apollo-like in eloquence, suggesting the mouthpiece of a long-necked clam.

sixty or seventy years of careful investigation of his cave dwellings and what they contained, show us that he was an artist with marvelous powers of observation, and a still more marvelous power of reproducing his artistic visions. The revelation of his artistic ability has been a distinct shock to the modern world. The second part of Professor Osborn's 'Men of the Old Stone Age' makes it clear that the generally accepted notions with regard to the cave man will have to be abandoned. Hereafter he must be looked upon as a brother man very like ourselves. Our imagination pictured him a step higher than the beast. Professor Osborn's book is filled with illustrations which prove very plainly what we are saying. The cave man's art of engraving rose to a very high level and his drawing was particularly admirable. Three of its qualities are particularly worthy of note. First, the revelation of a very close observation of the animal form; second, the realistic effect produced by very few lines; third, the well expressed suggestion of movement and activity. To estimate the art of the cave man it is necessary to compare his work not with that of children, nor with the crude productions of primitive painters, but with the leaders of our modern artists. In the comparison the cave man's art does not suffer but puts our own modern art to the test.

"Among the engravings on small objects reproduced in Professor Osborn's books is, for instance, an impressionistic design of a herd of reindeer engraved on the radius—one of the most important bones of the eagle's wings. This illustrates excellently with what few lines the palæolithic artists could suggest a number of animals. On reindeer horn there is an engraving of a deer crossing a stream, which in turn is full of fishes. On a small piece of stone, three by four inches, the cave artists have pictured a herd of horses in perspec-

tive. On a piece of ivory tusk a charging mammoth is pictured, and is one of the most life-like representations of an animal in action that has ever been done in such few lines.

"Not only did the cave man know how to paint an animal in motion, but he knew how to execute that much more difficult task of presenting an animal for the moment at rest, yet with every muscle tense and ready for action. Pictures of reindeer and of horses, where action for the moment is suppressed, are not uncommon. It is wonderful how well these artists of olden times have illustrated this difficult position. Suppression of emotion is for the dramatic artists one of the most difficult tasks; it is equally difficult for the artists in colors; yet this climax of artistic power has been successfully attained by the first group of artists of whom history speaks.

"Professor Osborn has reproduced in his book the picture of a bison at bay, probably the best known of all the works of the cave man. This famous picture is on the ceiling of the cavern at Altimira in Spain, and represents the final stage of polychrome art, in which four shades of color are used. Its color sense, as well as its drawings, proves that the artist was one who would be recognized as a genius at any period in the history of art. It is facts of this kind that bring home to us the striking contrast between the savage cave man of imagination and theory and the artistic cave man of reality."

It must be remembered that Professor Osborn himself characterizes these words of Dr. Walsh as "scholarly." Is there anything new in the Osborn reproductions of the cave man's art or in the comments of Dr. Walsh upon them? Not at all. For more than fifty years scholars have been marveling over many of the carvings, engravings, and pictures of the cave men.

In the 1915 edition of Osborn's "Men of the Old Stone Age," you will find, p. 398, the engraving of a mammoth found at La Madelaine.

The same engraving was reproduced by Lord Avebury (John Lubbock) in "Pre-Historic Times," first published 1865. In the New York, 1910 edition, the picture of the same mammoth can be found p. 312. The writer has at hand the original London 1870 edition of "Primitive Man," by Louis Figuier. The same engraving of the La Madelaine mammoth is found p. 106, just forty-five years before Professor Osborn made use of it. In "Early Man in Europe," by Charles Rau, New York, 1876, the same engraving is reproduced p. 59.

The reproduction of the browsing reindeer engraved on reindeer horn, as published by Osborn, p. 441, the writer has found in the 1910 edition of "Pre-Historic Times," p. 122, and in the 1876 edition, "Early Man in Europe," p. 105. In both the latter the engraving is described as "From Thayngen Cave, Switzerland." Osborn labels it "From Kessleroch, Switzerland." Another engraving on reindeer horn reproduced by Osborn, p. 359, and described as "batons de commandement," the writer has found in the New York, 1894 edition, of "Manners and Monuments of Pre-Historic People," by de Nadillac," p. 113, described as "staff of office." The same reproduction described as "staff of authority" is also found, p. 102, in the 1870 London edition, "Primitive Man." In the 1894 edition de Nadillac reproduces a carving of a grazing reindeer, a carving of a mammoth, a seal engraved on a bear's tooth, a great cave bear drawn on a pebble, a horse engraved on a reindeer antler, etc., none of which is reproduced by Osborn.

Grant that the cave men artists did begin in the Aurignacian times, which Osborn says commenced

40,000 years ago, and grant that they advanced into Magdalenean times which marked the close of the post-glacial period 18,000 years ago, we are compelled to admit that the cave man was not an inferior ape-man but a superior member of the human family whose skull-cap, like the Piltdown skull-cap, might have sheltered, to repeat the judgment of Huxley, the brain of a philosopher.

If, in the earliest evidence of man as uncovered by palæontologists, we discover evidence not of gross inferiority or of simian characteristics, but of genuine superiority it becomes all the more difficult to support the theory of a gradual evolution from the ape. With this proposition we are literally compelled to note the evidence not for an ascending evolution but on the contrary the evidence for a calamitous degeneration. We know that despite the modern discovery and application of sanitation, sewage disposal plants, water purification plants, the universal use of germicidal and prophylactic agents, the tremendous advances of medicine and surgery, the world-wide spread of education, the establishment of government departments for the inspection and control of foods and drugs, etc., etc., etc., there has been a constant increase of insanity and disease. In medical circles pessimistic alarms are sounded sporadically concerning the rapid increase of cancer, diabetes, Bright's disease, heart disease, hardening of the arteries, syphilis, etc., etc.

Let Haeckel himself testify. He says ("The Wonders of Life," 1904, p. 61): "The modern science of evolution has shown that there never was any such creation (as recorded in the first article of the Creed), but that the universe is eternal and the law of substance all-ruling." He says (p. 71): "When man's evolution from a series of other mammals was proved

the belief in the immortality of the soul, freedom of the will, and God, lost its last support."

He says (p. 114): "Many diseases . . . are making appalling progress; neurasthenia, especially, and other diseases of the nerves, carry off more victims every year. Our asylums grow bigger and more numerous every year . . ." He says (p. 119): "In Europe we have at least 2,000,000 lunatics." Consequently, he argues (pp. 112, 114, 115, 119), that man has an unquestionable right to end his sufferings by suicide; that we are justified by the use of a dose of painless and rapid poison, morphia, for instance, in killing lunatics, sufferers from cancer and other diseases, cripples, deaf mutes, etc.

"Organic life," he says (p. 130), "is nothing but a purely chemical process." And then he leaps to the evidences of modern degeneracy as if he had forgotten the to-be-desired significance of the so-called Neanderthal skeletal remains as evidence of an ascending evolution. He describes races now living as "approaching nearest to the ape, woolly-haired, flat-nosed, black or dark brown color, with pointed belly, thin and short legs, without homes, living in forests, caverns and trees, are the Weedas of Ceylon, the Semangs of the Malay Peninsula, the Negrites of the Philippines, the Andamine Islanders, the Kimos of Madagascar, the Akkas of Guinea, the Bushmen of South Africa. Others, approaching closely to the anthropoid apes, still live in various parts of the primitive forests of the Sunda Islands (Borneo, Sumatra, Celebes). They are from four to four and a half feet high; the women sometimes only three to three and a half feet. The value of their lives is like that of the anthropoid apes, or very little higher." And so he goes on to the living Australian Negroes and Tasmanians, the Ainos of Japan, the Hottentots, Fuegians, Macas, and some of

the forest races of Brazil. Little higher than these he places the inhabitants of Todas, Nagas, Curumbas, etc., of India, the Nicobar Islanders, the Samoyeds, the Kamtschadles, the Negroes of Damara in Africa and most of the Indian tribes of North and South America. Concerning the Fuegians, mentioned above, Darwin gives to Haeckel the lie direct. (See "Descent of Man," second edition, New York, p. 65).

Haeckel doesn't recognize that he is speaking of degeneration and so proceeds with his list of lower barbarians now living in Asia (Mundas, Khonds, Paharias, Bheels, etc.), the Dyaks of Borneo, the Kaffirs, Bechuanas and Basutos, the Aborigines of New Guinea, New Caledonia, New Hebrides, New Zealand, Nicaragua, Guatemala. Far below the so-called "higher development" of the civilized ape-man he places the Calmucks of Asia, the Ashantists, Fantists, Fellahs, Shilluks, Mombuttus, Owampos, etc. of Africa; the inhabitants of the Fiji, Tonga, Samoa, and Markesas Islands. To the same class he assigns the Lapps of Europe of 200 years ago, the Germans of 2,000 years ago, the Romans before Numa and the Greeks of the Homeric period.

Not with a few old bones is he dealing—a few old bones of negroid races described as "missing links,"—but with living human creatures, hundreds of thousands, millions of them. Why, then, do the Haeckelites of this generation resort to a rowboat load of mutilated skull-caps, fragments of thigh bones and grossly defective skeletal remnants to support their theory of an ascending evolution from the ape when here, now, alive in the world, they find countless millions of overwhelming proofs of universal degeneration from the ideal primitive described in the words: "AND GOD CREATED MAN TO HIS OWN IMAGE: TO THE IMAGE OF GOD HE CREATED HIM: MALE AND FEMALE HE CREATED THEM."

CHAPTER XXVI

The Evolution of Evolutions

The evolution of evolutions—The evolution of corruption—The right of might.

The evolution of socialism based on the biological foundations of society; the evolution of a "world state"; the evolution of the views of Bernhardi and other "biological militarists," that the most powerful, domineering and combative are the fittest socially, have closely followed not so much the scientific "progress" of the nineteenth century but rather the curious views of the popularizers of scientific theory. Let us trace the progressive stages of this evolution toward the most calamitous war of history.

Enthusiasm for scientific achievements grew so rapidly during the last half of the last century that the plain people came to believe that through the influence of scientific knowledge the whole world was about to undergo an extraordinary transformation in which disease, pain and poverty would be wiped out; in which comfort, pleasure and freedom from labor would abound.

Carlton J. H. Hayes, associate professor of history, Columbia University, says ("Political and Social History of Modern Europe," 1918, vol. II, p. 232): "The practical scientists were frankly materialistic in their aims: their kingdom was of this world, not of a world beyond the grave. Some of them even went so far as to maintain that crime and wrong-doing could be ex-

tirpated by means of surgery or of scientific breeding." Man was very old (sic). The Bible had deceived (sic) him by telling him he was very young. Thus he had been prevented (sic) from learning what he should have learned.

Charles Darwin, a youth of twenty-three years, embarking, 1831, as a naturalist on a surveying vessel, the H.M.S. *Beagle,* and looking forward to a voyage of five years in the South Sea Islands and Brazil, did not realize, as he became more and more interested in the ideas of Sir Charles Lyell, concerning the geological evidences of the "antiquity of man," what a tremendous impetus he was to give to the forces of war. Darwin never ceases to refer to Lyell in all his writings, with an enthusiasm never checked. A single instance will suffice from "The Origin of Species," vol. 2, chapter 10: ". . . read Sir Charles Lyell's grand work on the Principles of Geology which the future historian will recognize as having produced a revolution in natural science."

Lyell's "Principles of Geology" appeared 1830, when Darwin was twenty-two years of age. Lyell's conclusion was that the continuous operation of geological processes (volcanic eruptions, rivers wearing away their banks, etc.) over an almost incalculable period of time, would be sufficient to explain how the earth had assumed its present physical appearance. This conclusion spread like flame in straw, and with it the acceptance of inferences which made the Bible look like the Official Organ of Falsehood. True to Darwin's prophecy it produced a revolution but not altogether like the revolution which Darwin anticipated.

The geologists, eagerly adopting Lyell's views, began to give to man an age of at least 1,000,000 years, and to the world an age of "many" millions of years. So rapid was the growth of this idea that by 1872

Lyell's work had gone through eleven different editions, and had provided the "enemies of religion" with an arsenal of "scientific" shells to hurl at the "six days" of the Bible. The "struggle for existence" was already a phrase, galloping on its way to war.

Darwin, captivated by the "evidence" for great antiquity, had also been tremendously impressed by the Essay on Population, published 1798 by Thomas Robert Malthus. Malthus emphasized the idea that the increase of population was dependent upon a "struggle for existence." He held that there must always be poverty because there is not enough wealth to go around. Food increased merely in an arithmetical progression, whereas the human family increased at a geometrical rate. If the poor were given higher wages they would have still larger families, so that there would be more mouths to feed and as much poverty as ever. Because the world's food supply could not keep pace with its population vice and crime were necessary checks on the increase of numbers. This idea was evolving at a rate of speed never before observed. We shall follow it—into chaos.

Impressed by the "struggle for existence," Darwin thought that by applying the principle of Malthus to the whole organic world he could utilize the application to explain the variation of species. June, 1842, at the age of thirty-three, he sketched his new theory of biological evolution which was to be given to the world simultaneously by himself and Alfred Russell Wallace, sixteen years later, 1858.

The idea of Malthus was thus in process of evolution from political economy to a biological form. The political economists under the influence of the new doctrine were stressing the idea that each man should be concerned only with his own game and should let others shift for themselves, for the reason that each man knew

best how to take care of himself under the operation of the bio-chemic impulses which controlled his conduct, and that, therefore, if all individuals were thus well taken care of by themselves the State would be prosperous.

The old idea of "he who helps others also helps himself" was evolving into a new form: "He who helps himself helps others." In this manner a "scientific" justification of selfishness on a grand scale was preparing the public mind for the reception of all the notions that were to be poured out upon them ready made through the scientific phrase, "the survival of the fittest."

Man had already achieved liberty and was now seeking the kind of happiness and prosperity that science, wedded to enlightened selfishness, surely could and would provide. The misery and unrest which had developed with the proposition that "private interest is the great source of public good" knew no bounds. "It was expected," says Professor Hayes, "that the achievement of liberty, happiness and prosperity would be attained. And truly Great Britain, whose industry was most completely emancipated, grew very wealthy; her capitalists were more prosperous, and her factories and ships more numerous than those of any other nation. The fruits of liberty seemed to be as precious as the golden apples of ancient fable.

"Yet along with the golden apples, the tree of liberty brought forth bitter and unsightly fruit for the workers. The early factories were ugly, ill-ventilated, poorly lighted, and unsanitary buildings, hastily and cheaply built. 'In these dingy buildings, choked with dust and worn with overwork, the English freemen enjoyed to the utmost the blessed privilege of freedom of contract.' In the mines, too, women and children worked along with the men. Women and girls were

harnessed to coal-carts, creeping on all fours through the low-roofed galleries of the coal mines.

"In the early nineteenth century a great crusade was preached in England against negro slavery, and slave owners in British colonies were forbidden to work their slaves more than nine hours a day, or six hours for children.

"But the white citizens of Great Britain received no such protection. There was a law by which pauper children, five and six years old, were taken from their homes, sent from parish to parish to work in factories, and bought and sold in gangs like slaves.

"In the factories they were set to work without pay, the cheapest of food being all they could earn. If they refused to work, irons were put around their ankles, and they were chained to the machine, and at night they were locked up in the sleeping-huts. The working day was long—from five or six in the morning till nine or ten at night. Often the children felt their arms ache with fatigue and their eyelids grow heavy with sleep, but they were kept awake by the whip of the overseer. Many of the little children died of overwork, and others were carried off by the diseases which were bred by filth, fatigue, and insufficient food.

"When the attention of factory-owners was drawn to these conditions, they replied that business would not pay if employees worked less or received larger wages, that no employer would intentionally misuse his employees, and that anyway it was wrong for government to meddle with a man's private business. With this answer they dismissed the problem, and would do nothing to relieve the suffering of the workers in factory or mine. What few measures were enacted to restrict child labor and to improve factory conditions in the first half of the nineteenth century were the work of Tory landowners, not of Liberal factory-owners. The

reforms were trifling, however, and the working classes everywhere seemed to be sinking into abject poverty. Instead of a boon to mankind, machinery appeared to be but a cruel instrument of oppression in the hands of conscienceless capitalists."

This was the setting in which Darwin's ideas were framed—the condition behind the state of public mind into which he projected them. Robert Owen was working out his socialistic ideas at New Lanark, Scotland, and although he had startled society by his "model community," its very success, built around an unceasing attack upon Christianity and marriage, had so far decayed that by 1858 it was already clear that society would not be reorganized according to the Owen scheme. Owen died, 1858, as Darwin's work was about to be given to the world, and with it a new conception of "conscience" destined to corrupt such morals as civilization could still boast of.

Darwin was teaching ("Descent of Man," Appleton, 1920, Part 1, Chap. IV) that the moral sense had been acquired by man by reason of the fact that "the more enduring social instincts conquer the less persistent instincts. At the moment of action man will no doubt be apt to follow the stronger impulse; and though this may occasionally prompt him to the noblest deeds, it will far more commonly lead him to gratify his own desires at the expense of other men. But after this gratification, when past and weaker impressions are contrasted with the ever-enduring social instincts, retribution will surely come. Man will then feel dissatisfied with himself and will resolve, with more or less force, to act differently for the future. This is conscience; for conscience looks backward and judges past actions, inducing that kind of dissatisfaction which, if weak, we call regret, and if severe, remorse." ("Descent of Man," Appleton, 1920, Part 1, Chap. IV).

Courtesy Zoological Society.
Photograph by Edwin R. Sanborn.

Haeckel delighted in describing this as the "foot" from which the human foot evolved. Note extraordinary grasping capacity of this "foot." (Gorilla.) Also grasp this. It is popularly believed that the wave of materialism in which the world is now steeped, originated early in the nineteenth century, when it became the fashion to explain life on this planet by resorting to combinations of atoms, spontaneous generation, creation by chance, etc., all of which is quite ancient, and not modern at all. In the epistle of Athanasius, vol. 1, p. 37, Newman's translation, 1911 edition, you will find this: "For though all things be said to be from God in that they exist not at random or spontaneously, nor come into being by chance, according to those philosophers who refer them to a combination of atoms and to elements which are homogeneous, etc." Again you will find, p. 126 of the same work: "Do you not open the door to Greek atheism, to a creation by chance or by atoms?" There is indeed much evidence of the antiquity of this so-called up-to-date phase of materialism.

Darwin made no effort in his scientific dismissal of the moral sense or in his scientific definition of conscience, to account for the remorse experienced in the gratification of desires that are not at the expense of society but merely a source of pleasure to the individual—not alone acts, but even thoughts that the individual knows to be wrong. For such thoughts the individual is not answerable to society. Carnal pleasures derived merely through the mind have not injured society, and yet the individual feels that he is guilty and that he is answerable for his guilt.

Even Wallace recognized the absurdity of this effort of Darwin to make conscience a matter of mechanics or chemics and points ("Natural Selection," pp. 353-355) to the horror for lying—even where a lie would benefit them—of certain hill tribes in Central India.

Darwin did not accept the fact that an individual, feeling that he has done an injury to others, recognizes thereby the difference between justice and injustice, between right and wrong, and that his dissatisfaction, or remorse, is consequently based upon his own self-inflicted outrage against his own sense of right and wrong.

Darwin's argument was that conscience proceeded from the dissatisfaction instead of the dissatisfaction proceeding from conscience. This argument was necessary if biology and evolution were to take the place of conscience and God.

The Evolution of Corruption

With the brutalizing of the industrial masses and the rapid spread of a materialistic conception of the moral sense, a mechanical conception of conscience, a biological conception of right and wrong, a selfish conception of expediency Thomas Huxley found no small

audience for his "Man's Place in Nature," published 1863, in which he sought to demonstrate that man himself was but a transitional stage in the natural evolution from lower to higher type. Like Herbert Spencer, he championed "The New Darwinism," and set out with the avowed purpose of attacking the foundation of revealed religion, declaring that "there is no evidence of the existence of such a being as the God of the theologians," rejecting Christianity with no appreciation of its historical effect as a socializing and civilizing force.

Herbert Spencer, with the publication of his "Synthetic Philosophy," 1860, denying that man had a soul, contributed greatly to the wave of materialism and agnosticism.

Huxley, crying out against the absurd moral code of Christianity and the preposterous doctrine of free will, undertook, with the support of evolution, as he saw fit to twist it to his purposes, to establish the reign of scientific atheism. Biological phenomena were henceforth to justify whatsoever enormities of conduct the world might witness, and the world was not resisting the new "enlightenment," the new "progress" of science.

The outstanding revolutionary influences in England and the mile-posts in their progress were Thomas Malthus, 1798-1803, Charles Lyell, 1830-1833, Charles Darwin, 1842-1858-1871, Alfred Russell Wallace, 1858, Herbert Spencer, 1860, and Thomas Huxley, 1863. Of course there were others of lesser brilliance, but these were the luminous energies pushing evolution into war.

Huxley's substitute for freedom of will was the doctrine of "fatalism in conduct based on natural evolution."

"The actions we call sinful," he said, "are part and parcel of the struggle for existence. The moral sense

is a very complex affair—dependent in part upon associations of pleasure and pain, approbation and disapprobation, formed by education in early youth, but in part also on an innate sense of moral beauty and ugliness (how originated need not be discussed), which is possessed by some people in great strength while some are totally devoid of it." Sin was an external symptom of bio-chemic activity no more controllable than the fires of a volcano or the sweep of a tidal flood. Scorching the heights or submerging the depths it was merely a chemical symbol in process of formulation, the chemical symbol of the most stupendous conflict of all time and the possible forerunner of another, more terrible, to come.

Contributing to these generalizations of science in Germany were Ernst Haeckel and scores of lesser lights appearing suddenly like froth in the wake of a battleship and disappearing just as suddenly only to be followed by more and more and more. In France Ernest Renan, with his contemporaries and followers, carried on the movement. Nearly all rejected the Bible or ignored it. Many assailed Christ; all declared themselves champions of "Darwinism." Obviously Darwinism, attracting students, physicians, lawyers, statesmen, even tradesmen, to its new evolutionary conception, began to be associated with violent outbreaks, in the name of "enlightenment" and "progress" against all religion.

For a time Protestantism seemed to be doomed by the new Darwinism. Catholic faith suffered less, for it was based on the writings of the early Fathers and on tradition, as well as on the Bible, but Protestants held that the Scriptures constituted their sole rule of faith and their sole guide of conduct. Hence when scientific theories, "evidence," "demonstrations," seemed to "prove" that the Bible was a mad jumble of errors the

Protestant conception of religion received a terrific shock.

The vagueness with which the theory of evolution was surrounded (and still is), the necessity of not examining its details too closely and the multitude of fresh objections which it proposed, in those "biological" days, against faith and revelation all tended to make it popular with a certain class of scientific men and popularizers of science.

The mysterious Unknowable, to which Herbert Spencer consigns the inexplicable riddles, conundrums, enigmas, and dilemmas of science, standing in the background of the mighty energies of nature, made a comfortable substitute for any religion which imposed restraint on human conduct. Agnosticism and indifferentism began to flourish. As Christianity and science were "wholly incompatible," there was no longer any room in the world for old-fashioned faith.

The Catholic Church sought to meet this drift toward materialism by emphasizing in all Catholic seminaries and colleges the writings of Thomas Aquinas, who taught that natural law and supernatural religion could not be in ultimate conflict because both were from one and the same God, and who, as we have seen, had actually forearmed the Christian world against the assault of Darwinism by declaring hundreds of years before Darwinism was born that it mattered not at all whether natural creation had been effected by one original divine act or by an infinite succession of divine acts.

Louis Pasteur and Gregor Mendel, the one a Catholic lay scientist, the other a Catholic priest, were demonstrating quietly by their scientific discoveries in bacteriology and biology that the Catholic Church no longer feared that there could be any irreconcilable conflict between natural science and religion.

Leo XIII, standing in the very teeth of the storm that

was shaking the foundations of society, announced, 1879, that all truths were to be gratefully received regardless of whence they came. Moreover he threw open to the students of the world the doors of the Vatican archives and library so that the publication of its ancient documents might reveal the contributions of the Church to the development of human civilization. At his own expense he equipped the Vatican observatory with costly astronomical instruments, establishing a staff of scientists and maintaining their activities.

Science for the most part seemed to have forgotten the Abbé Lazzaro Spallanzani, who died at Pavia, February 12, 1799, after an extraordinary career as priest, logician, metaphysician and biologist. The scientific achievements of this forerunner of Louis Pasteur were so great that he was actually made a member of academies and learned societies in London, Madrid, Stockholm, Upsala, Göttingen, Lyons, Holland, Bologna, Milan, Siena, Turin, Padua Manchua, Geneva and Berlin.

Ernst Haeckel had not forgotten this man for the very good reason that Louis Pasteur wouldn't let him, although Haeckel, "to show his fairness," refers to Spallanzani in his "The Wonders of Life," as having done something very extraordinary in the year 1687, which happened to be precisely 42 years before Spallanzani was born.

If the reader would determine for himself how truly ridiculous, how superficial and shallow Haeckel could be, he need only refer to pages 349-353 of the 1904 edition of "The Wonders of Life," published by Harper & Brothers, New York and London.

Haeckel admits that the Abbé Spallanzani showed in 1687 that "no unicellular organisms appear in infusions of decomposing organic matter if these infusions

are well boiled and the vessel carefully closed. The boiling kills the germs in them and the exclusion of air prevents the entrance of fresh germs."

Haeckel realized that this demonstration of Spallanzani completely shattered the evolutionist's theory of spontaneous generation. There was nothing to do but face the fact and to describe sympathetically what Haeckel himself must, therefore, characterize as "the famous experiments of Pasteur," which ended in the maxim, "Spontaneous generation is a myth."

Haeckel pays tremendous tribute to Rudolf Virchow, Louis Pasteur, and other "famous biologists and bacteriologists," actually glorying in the scientific fact that "Pasteur showed convincingly that organisms never appear in infusions of organic substances when they are sufficiently boiled and the atmosphere that reaches them has been chemically purified." He even admits that "Pasteur's rigorous experiments" yielded results "which were confirmed by Robert Koch and other bacteriologists, giving rise to the modern precautions as to disinfection." Yet Haeckel did not long conceal the purpose of his flattery of Spallanzani, forty-two years before the latter was born, and of Pasteur, who, then living, was too great a man to challenge in battle at a time when all living scientists were acclaiming the truth of his extraordinary achievements.

Haeckel did not dare attack Pasteur directly, as was his custom in attacking God, yet for the sake of evolution there had to be an attack. Could anything have been more skilfully devised than the method of attack which Haeckel finally adopted? First, flattery of the scientific achievements of a dead priest about whom Haeckel knew so little to flatter that he had him breaking out all over with a rash forty-two years before he was born. Then, extraordinary praise for a living sci-

entist of similar religious views and belief in God as those in which the dead priest died. Finally, the following (from pages 352, 353, "The Wonders of Life," American edition, 1904): "The great popularity of the famous experiments of Pasteur on spontaneous generation, and the unfortunate confusion of ideas which was caused by the false interpretation of his results, make it necessary for me to say a word on the general value of scientific experiments in many questions.

"The much-admired experiments of Pasteur and his colleagues prove merely that in certain artificial conditions infusoria are not formed in decomposing organic compound or the dead tissues of highly organized histona; they cannot possibly prove that saproboses (birth of living from putrid matter) of this kind do not take place under other conditions."

The Spallanzani-Pasteur facts stood because they were "famous" and "much-admired" and of "great popularity," *but,* says Haeckel, in a whisper, *they don't mean anything, and Darwinism is quite safe.*

In the meantime Darwin himself had become conscious of the fact that the rapidly growing conception of "Darwinism" as the theory of "Evolution" was a misnomer, even though as such it had taken deep root and found an almost irremovable lodgment in the public mind. He was quite as conscious of the law of retrogression and of the degeneracy of species and races and of the universally active tendencies of retrogression and degeneracy as he was conscious of the law of progression.

He knew that the surviving type was not by any means the most perfect type. He knew that both in the animal and the vegetable kingdoms the student everywhere meets with variations of species and races, and that these variations are imprisoned within well

defined lines. He knew that nature does not blunder; that the germ of every species of plant and of every species of animal will develop along the lines of the species in accordance with a law as fixed as the law of gravitation.

He knew that the human germ from its primary cell develops always toward the formation of a human being and that in every stage of its growth it is always human, never bovine or simian. He knew that the only warrant for the theory of the specific origin of man as the product of evolution from lower forms of animal life was an inference and nothing else, and that this inference, drawn from another set of inferences, was plausible only when certain contradictions and inexplicable phenomena were wholly ignored. He knew that no theory of evolution was adequate to explain the rational and spiritual side of man's nature. Even Herbert Spencer ("First Principles," London edition, p. 557) acknowledged a guiding and directing power—"a power of which the nature remains forever inconceivable and to which no limits in time or space can be imagined, working in us certain effects." Wallace himself ("Darwinism, an Exposition of the Theory of Natural Selection," 1889, chap. xvii), admitted that the mathematical faculty in man, the musical faculty, the metaphysical faculty, the art faculty, the faculty of wit and humor, could by no possible arrangement have been the outcome of Natural Selection, but that all man's higher faculties pointed clearly to an unseen world guiding and directing the visible world.

Notwithstanding these stumbling blocks in the path of the survival of the fittest, the popularizers were lugging the biological idea still further into sociology. Karl Marx and Friedrich Engels were voicing their theories of "The International."

Marx insisted that society as we now know it has

been evolved gradually out of many class struggles of the past; that the course of history has always been determined by economic factors, and that the present capitalistic society will inevitably be evolved into socialism. Thus Marxism became to social science what Darwinism became to natural science.

In Russia a group of intellectual radicals known as the Nihilists was recruited from the universities and professional classes. They despised and denounced the Orthodox Faith as well as the political autocracy, the social institutions and the general backwardness of Russia. They would educate the people to a proper appreciation of "enlightenment" and "progress." Under the influence of Darwinism they announced their belief in the infallible evolution of humanity from autocracy to democracy, from barbarism to culture. Fatalism brooded over their counsels with but one objective—to hurry the inevitable end.

Militarism was growing. In 1862 Prussia introduced compulsory military service for every able-bodied male. In 1868 Austria Hungary followed. In 1872 France also adopted militarism. In 1873 Japan made a similar step "forward." In 1874 Russia joined the ranks. In 1875 Italy added her name to the list. What these nations were doing on land Great Britain was doing at sea. Philosophers, scientists, poets, historians and sociologists were justifying nationalism and militarism. The ideas interlocked and both rested on a "biological" foundation.

Seizing the scientific theory of evolution which the people by this time "understood thoroughly," the new prophets of materialism applied it not only to the field of biology but to the field of sociology, so that Spencer's phrase "the survival of the fittest" was employed as an explanation of the birth and rise of NATIONS. Nothing could have been more inevitable.

Says Professor Hayes ("A Political and Social History of Modern Europe," 1918, vol. II, p. 690): "Militarists were not slow to utilize a supposedly scientific doctrine that was enunciated by scholars and that was sure to secure a large following among the ignorant and half-educated masses in an age in which "science" was fast becoming a popular fetish. Prominent European militarists, with the authority of their newly discovered philosophy, commenced to talk less of the defensive character of armaments and more of "the struggle for existence," and of the advantages, nay the downright necessity, of waging war. But it was reserved to General Friedrich von Bernhardi, in 1912, to state most clearly the militarist's conception of war in the light of the new philosophy and science. "War is the father of all things," he quoted, and then went on to say, "The sages of antiquity long before Darwin recognized this. The struggle for existence is, in the life of Nature, the basis of all healthy development. All existing things show themselves to be the result of contesting forces. So in the life of man the struggle is not merely the destructive, but the life-giving, principle. . . . War gives a biologically just decision. . . . The knowledge, therefore, that war depends on biological laws leads to the conclusion that every attempt to exclude it from international relations must be demonstrably untenable. But it is not only a biological law, but a moral obligation, and, as such, an indispensable factor in civilization."

Darwinism had saturated the war-lords with all the catchwords essential to the prosecution of their designs and the people, lured by the promises of mad men and the nomenclature of a science which they knew only through the shallow writings and lectures of popularizers, were prepared to follow to the end, little dreaming of the carnage, starvation and disease toward which

their "progressive" evolution was now thundering its flight.

The Right of Might

Bernhardi's statement, "War gives a biologically just decision," will be found in "Germany and the Next War," 1911, p. 23. The claim that his books had little circulation was investigated, 1917, by the U. S. Committee on Public Information, which reported, ("Bulletin No. 24," February 18, 1918), as follows: "His 'Deutschland und der nächste Krieg' had gone into its sixth edition by February, 1913. *Die Post,* reviewing it in 1912, said that it 'engaged the serious attention of our own political and—it need hardly be added—military circles.' The book has frequently been referred to in the Reichstag debates and in the newspapers. There can be no doubt that Bernhardi expressed the feeling of a large part of the influential classes in Germany."

The application of the biological principle "the survival of the fittest" to the sociological and political problems of nations was expressed by Professor Lasson of the University of Berlin in two sentences in his "Das Kulturideal und der Krieg." The first, found page 14, reads as follows: "Between states there is only one course of right, the right of the strongest. It is perfectly reasonable that wars should arise between states."

The second, found page 26, constitutes an elaboration of this biologically scientific idea: "It is impossible that a state should commit a crime. . . . Not all the treaties in the world can alter the fact that the weak is always the prey of the stronger."

Carrying "the survival of the fittest" idea into its most brutal but none the less inevitable conclusions he says, page 35: "The state (which realizes the highest

form of the culture of the race) can realize itself only by the destruction of other states which, logically, can only be brought about by violence."

Tracing the evolutionary growth of the misapplication of the zoological theory to its logical end we find the 1913 youth of Germany, of the age of our American Boy Scouts, bowing their heads before the idea "WAR IS THE NOBLEST AND HOLIEST EXPRESSION OF HUMAN ACTIVITY." This declaration is found in *Jung-Deutschland,* Official Organ of Young Germany, October, 1913.

It was the popular idea in the United States during the World War to attribute all such philosophy to the militarists and nationalists of Germany. But the militarists and nationalists of Germany were merely utilizing the biological and evolutionary ammunition of other groups of thinkers to support their aims and purposes. France and England were equally guilty with Germany in the dissemination of the new materialistic philosophy. Ernst Haeckel in Germany was duplicated by Thomas Huxley in England, and Thomas Huxley in England had his counterpart in Ernest Renan in France.

The belief that Adam was a fallen man capable of responding to grace had given place to the idea that man was an exalted ape. The individual sinner, lost in the welter of evolution as it had been so grossly interpreted for him by the popularizers, could not cry out: "I have sinned. God be merciful to me, a sinner." The penitent's prayer froze upon the lips of the exalted ape. Where there could be no sin, but only the inevitable crash of "the fatalism of conduct," there could neither be forgiveness of sins nor repentance for sins.

"It was the peculiar ability of Darwin to see nature from four dimensions—length, breadth, depth and dur-

ation," says Professor Conklin, but it certainly was not his peculiar ability to see the chaos which the application of his theories by the unscientific popularizers would bring about in so many departments of human activity.

Thus the Trinil Ape-Man, the Piltdown Man and all the other twisted and mutilated compositions of the "reconstructionists" played their part in the preparation of a state of mind prone to respond to chaos.

True science had contributed nothing to this calamity. True science was not responsible for it. The perversity and inordinate inferences of men who masked their designs in "scientific" dress found, among a people grown materialistic in their attitude toward body and soul, an all-too-ready acceptance of the "Darwinian" propaganda. "With desolation is the earth made desolate because no man thinketh in his heart." The leaders of the people do not so much lead them in spite of themselves as they are pushed forward by an already well developed disposition of the mass. This is one of the evil signs of the times, for the grip of popular opinion upon what is loosely called "Darwinism" still persists and must go on to newer terror as long as it persists.

That there should be no weakening of the fascination of "Darwinism," as the theory of man's ape-origin, is, to the writer, the most disquieting and at the same time most inexplicable phenomenon of the twentieth century, for the simple reason that the preponderance of scientific evidence, including all the established data and all the opinions based on truth as it has been stripped of error, have come into court solidly against the ape, whereas, on the other hand, there remains on the side of the ape nothing but the old inferences and assumptions, nothing but the old hypotheses and unsupported theories based on erroneous or deliberately

fabricated premises, nothing but the old conflicts and contradictions, nothing but the old falsifications and exposures. In their choice the nations have the alternative of chaos or Christ.

Courtesy Zoological Society.
Photograph by Edwin R. Sanborn.

Gorilla forehand in walking position. Front view. Is it to symbolize the hand of the brute laid upon the world?

APPENDIX

Note on the Word "Day"

With regard to the meaning of the word "day" as discussed in chap. XXIV., the following notes may further illuminate the subject.

According to the Bible itself, the first three "days" of Genesis could not have been solar days in the strict sense of the term, because the sun itself was not created until the "fourth day." Many centuries ago the great Augustine declared that it was impossible to define the exact nature of these pre-solar days.

How can the rationalists insist that the biblical word for "day," as used in Genesis, means a period of twenty-four hours, when in the second chapter, fourth verse, the entire period of "six days" is referred to as "one day"?

"Istae sunt generationes coeli et terrae, quando creata sunt in die quo fecit Dominus Deus coelum et terram—These are the generations of the heaven and the earth, when they were created *'in the day'* that the Lord God made the heaven and the earth."

The word "day" is obviously here a synonym for "time," in which sense it is frequently employed in scriptural phrases; as the "day of vanity," the "day of tribulation," etc.

But to show the rationalists that the word "day," as used in Genesis, cannot be limited to a term of twenty-four hours it is only necessary to refer to chapter two, verse seventeen: "But of the tree of the knowl-

edge of good and evil, thou shalt not eat of it: for in the day that thou eatest thereof thou shalt surely die."

Now, according to the genealogy, age and death of the patriarchs from Adam unto Noah, as narrated in chapter five, verses three and four, Adam lived 930 years.

Here is proof, in the Bible itself, and in the very book of Genesis quoted by the rationalists, that "a day" consisted of the hundreds of years between the fall of Adam and his death.

We ourselves use the word "day" as a synonym for an indefinite period of "time." We say, John L. Sullivan was the greatest fighter of his day. Caruso was the greatest tenor of his day. Certainly we do not mean by this that Sullivan and Caruso lived but a day.

Ecclesiastical tradition makes no effort to compel science to accept the Hebrew word for "day" in the sense of an ordinary day of twenty-four hours. In the middle of the fourth century Athanasius actually anticipated the teaching of Augustine on this point. Why, then, do the rationalists quarrel with a straw man of their own making, when they have before them the words of Augustine: "It is practically impossible to define the exact nature of these pre-solar days"?

Entirely apart from its significance of time, secular historians who deal neither with religion nor science often refer to something done as a "day." They speak of the "day of Waterloo." The Bible employs the word "day" in the same fashion—the "day of the Lord," the "day of great wrath." As the "day of Waterloo" means the same thing, the act, operation, work or performance, regardless of duration, so the analogous terms "evening" and "morning" may signify the completion of one act and the beginning of another, just as moderns speak of the "dawn of prosperity" or the "evening of life."

The point is: Why do rationalists quarrel with the Bible where there is no quarrel, except of their own making, and why do they not marvel over the extraordinary sequence of events recorded by Moses in the exact chronological order revealed by modern science itself in its interpretation of the Record of the Rocks?

Note on 3,000,000 Years

In our own time geologists have been compelled to correct some of their estimates of the world's age, even to the extent of reducing an alleged period of 3,000,000 years to 7,000 years. Some of the details of these corrections are exceedingly interesting, and though elsewhere referred to in this volume, will bear a slight extension of detail.

Sir Charles Lyell's reason for visiting Niagara Falls with Professor James Hall in 1841 was that then, as now, the geologists saw in the gorge below the Falls an important chronometer for measuring the time since the recession of the great North American ice sheet.

Desor, the French geologist, had given to the gorge an age of 3,000,000 years. Lyell's computations compelled him to correct this extraordinary estimate, bringing it down to 100,000 years. This correction was based upon what Lyell believed to be a recession of four inches a year.

Hall pointed out the fact that the recession was going on at a much more rapid rate, at least a foot a year. Another correction was made, reducing the figure to less than 35,000 years.

In the surveys made (1875) by the "New York State Geologists," and in 1886 by the "United States Geological Survey," it was found, to the amazement of scientists, that the rate of recession was not one foot a year, as estimated by Hall, and not four inches a year,

as estimated by Lyell, but from twenty to twenty-seven feet a year in the central part of the Horseshoe.

Taking an average rate of only five feet per annum, the members of the Geological Survey arrived at the conclusion that 7,000 years is as long a period as could possibly be assigned to the commencement of the gorge.

Another chronometer is the gorge of the Mississippi River, extending from the Falls of St. Anthony at Minneapolis, to its junction with the pre-glacial trough of the old Mississippi at Fort Snelling, a distance of about seven miles.

Here, as at Niagara, the upper strata of rock consist of hard limestone underlaid by soft sandstone, which, like the underlying shale at Niagara, is eroded faster than the upper strata, so that a perpendicular fall is maintained.

The strata are so uniform in texture and thickness that the rate of recession of the Falls must have been from the beginning very constant.

G. Frederick Wright, who himself was a member of the United States Geological Survey, says, "Man and the Glacial Period," Appleton, 1896, p. 340: "Fortunately the first discoverer of the cataract—the Catholic missionary Hennepin—was an accurate observer and was given to recording his observations for the instruction of the outside world and of future generations. From his description, printed in Amsterdam in 1704, Professor N. H. Winchell is able to determine the precise locality of the cataract when discovered in 1680.

"Again in 1766 the Catholic missionary Carver visited the falls, and not only wrote a description, but made a sketch (found in an account of his travels, published in London in 1788) which confirms the inferences drawn from Hennepin's narrative. The actual period of recession extends to the year 1856, at which time such artificial changes were introduced as to

modify the rate of recession and disturb further calculations.

"But between 1680 and 1766 the Falls had evidently receded about 412 feet. Between 1766 and 1856 the recession had been 600 feet. The average rate is estimated by Professor Winchell to be about five feet per year, and the total length of time required for the formation of the gorge above Fort Snelling is about the same as that calculated by Woodward and Gilbert for the Niagara gorge"—some 7,000 years, not 3,000,000 years!

These corrections have been adopted by the geologists as orthodox, but no parallel corrections have been applied to what they call the Eocene, or to the little squirrel-like father of the horse, the Eohippus, given, like the Niagara gorge, an age of 3,000,000 years.

Perhaps some day it will be quite as scientific to correct 3,000,000 years of Eohippus to 7,000 years, as it has been scientific to correct the 3,000,000 years of Niagara gorge to 7,000 years.

Darwin had something like this in his mind. In the first edition of his "Origin of Species" he estimated that the time required for the erosion of the Wealden deposits in England was 306,662,400 years, which he spoke of as "a mere trifle" of the time at his command for establishing the Darwinian theory. This was before Sir William Thomson whittled these millions down like an "odious specter."

In his second edition Darwin confesses that his original estimate concerning the length of geological time was rash. In all later editions he quietly omitted it.

Note on the Eye

With respect to the origin of the eye, chap. VIII., pp. 113-114, the evolutionists are lost in a maze of contra-

dictions. Speaking of the Trilobite which goes back to the very base of the Silurian system dating from the oldest period of life, Alexander Winchell observed as early as 1870 ("Sketches of Creation," Harper & Brothers, p. 80), that this extraordinary creature had eyes beautifully and fully developed. He says: "With all, except the lower forms, the eyes are distinctly discernible, and even in these the places for the eyes are visible, and there is no reason to suppose they were blind. In the others the eyes are curiously compound, like those of the common house-fly. The beautiful and perfect structure which they display will compensate for the trouble of procuring the means to make the observation. Some scores of little lenses, arranged with the most perfect symmetry, each set in its little telescopic tube, form upon the retina the various portions of an image of some external object. Such eyes had the Trilobite."

Note on the Skull of Bruce

The popularizers of fraud who so frequently refer to the Neanderthal type of skull as one of the supporting pillars of their ape-man theory, are extremely careful never to refer to G. Frederick Wright, "Man and the Glacial Period," Appleton, 1896, p. 276. The following, with reference to chap. III., p. 36, is quoted:

"Upon extending inquiries it was found that the Neanderthal type of skull is one which still has representatives in all nations; so that it is unsafe to infer that the individual was a representative of all the individuals living in his time. The skull of Bruce, the celebrated Scotch hero, was a close reproduction of the Neanderthal type; while, according to Quatrefages, the skull of the Bishop of Toul, in the fourth century, even exaggerates some of the most striking features of the

Neanderthal cranium. The forehead is still more receding, the vault more depressed, and the head so long that the cephalic index is 69.41."

Note on Original Varieties

Among the contradictions referred to in chap. VIII., and which from the very outset defy explanation that will square with any theory of evolution are the crinoids, brachiopods and trilobites identified with the beginning of life. Winchell says of them ("Sketches of Creation," p. 76): "One cannot but be astonished that in the very outset of animalization upon our globe so high a rank and so great variety of types should have been manifested. If we are to judge from that which is known rather than that which is conjectured, we are compelled to conclude that the varied forms of animal life did not come into being by a gradual evolution from the Eozoön, but as so many original utterances of the all-skilled Artificer of creation."

Note on Placental Shark

With regard to the evolutionary riddle of the placental shark referred to, chap. X., p. 135, the reader may consult the Herbert Spencer lecture, "Aristotle as a Biologist," delivered by D'Arcy Wentworth Thompson, University of Oxford, February 14, 1913, Clarendon Press, pp. 20-21. The following is quoted:

" . . . Other kinds do not lay eggs, but bring forth their young alive, and these include the Torpedo and numerous sharks or dogfish. The eggshell is in these cases very thin, and breaks before the birth of the young. But among them there are a couple of sharks, of which one species was within Aristotle's reach, where a very curious thing happens. Through

the delicate membrane, which is all that is left of the eggshell, the great yolk-sac of the embryo becomes connected with the parental tissues, which infold and interweave with it; and by means of this temporary union the blood of the parent becomes the medium of nourishment for the young. And the whole arrangement is physiologically identical with what obtains in the higher animals, the mammals, or warm-blooded vivipara. It is true that the yolk-sac is not identical with that other embryonic membrane which comes in the mammals to discharge the function of which I speak; but Aristotle was aware of the difference, and distinguishes the two membranes with truth and accuracy.

"It happens that of the particular genus of sharks to which this one belongs, there are two species differing by almost imperceptible characters; but it is in one only of the two, the Galeos leios of Aristotle, that this singular phenomenon of the placenta vitellina is found.

"It is found in the great blue shark of the Atlantic and the Mediterranean; but this creature grows to a very large size before it breeds, and such great specimens are not likely to have come under Aristotle's hands. Cuvier detected the phenomenon in the blue shark, but paid little attention to it, and, for all his knowledge of Aristotle, did not perceive that he was dealing with an important fact which the Philosopher had studied and explained. In the seventeenth century, the anatomist Steno actually rediscovered the phenomenon, but he was unacquainted with Aristotle. And the very fact was again forgotten until Johannes Müller brought it to light, and showed not only how complete was Aristotle's account, but how wide must have been his survey of this class of fishes to enable him to record this peculiarity in its relation to their many differences of structure and reproductive habit."

The writer would have more respect for the devotees of the evolution theory were they less self-conscious in their efforts to avoid such stumbling blocks as these by an all-too-transparent policy of over-eloquent silence.

Note on Flints and Fire

In "Natural History," the *Journal of the American Museum of Natural History,* vol. XXI., No. 6, published New York, February, 1922, Professor Henry Fairfield Osborn declares, "We have at last in the Foxhall flints found proofs of the existence of real *Tertiary man.*"

In proving that there really was a Tertiary man, Osborn relies upon J. Reid Moir, who, in his treatise on Pre-Palæolithic Man, maintains that the Piltdown freak was a real person who actually existed in the Upper Pliocene age, and "possibly was the maker of the Foxhall flints."

"This discovery of man in Pliocene time," says Osborn, "delights the present writer for a personal reason, namely, because it tends to render somewhat more probable his prophecy made in April, 1921, before the National Academy of Sciences at Washington that one of the great surprises in store for us in science is the future discovery of Pliocene man with a large brain."

This enthusiasm has been slightly chilled by Osborn's confession that "at present, however, we know nothing of the brain-weight and little of the degree of intelligence of the man who fashioned the flint of Foxhall near Ipswich."

Nevertheless, out of this nothingness of matter Osborn has fashioned what he calls the Foxhall man of Ipswich. In a signed paper published in the New York *Times,* Sunday, March 5, 1922, Osborn speaks of this

new creation as if he had seen and examined its various members. He says:

"The very recent discovery of Tertiary man which I have just described in 'Natural History,' living long before the Ice Age, certainly capable of walking in an erect position, having a hand and a foot fashioned like our own, also a brain of sufficient intelligence to fashion many different kinds of implements, to make a fire, to make flint tools which may have been used for the dressing of hides as clothing, constitutes the most convincing answer to Mr. Bryan's call for more evidence. This Foxhall man found near Ipswich, England, thus far known only by the flint implements he made, and his fire, is the last bit of evidence in the direction of giving man a descent line of his own far back in geologic time. This is not guesswork, this is a fact. It is another truth which we shall have to accept regardless of its effect. No naturalist has ever ventured to place man so far back in geologic time as this actual discovery of the Foxhall man places him. In this instance again truth is stranger than hypothesis or speculation."

So we have hands and feet, and a large brain, and a man really found, as far as the superficial reader is concerned, until we discover that we have no such hands or feet, no brain of any kind, no skull, no bones, no finding of a man *or of any fragment of a man.*

Yet we are coolly informed by the president of the American Museum of Natural History, by the vertebrate palæontologist of the United States Geological Survey, by the research professor of zoölogy in Columbia University, that this fact which is not guesswork, which is another truth that we must accept regardless of its effect, is "the most convincing answer to Mr. Bryan's call for more evidence."

The evidence consists of eoliths, flints, some of them

so large and so heavy that Osborn himself admits that he sees in them a new problem.

Our ancestors, the Neanderthals, are given a squatty build. They were five feet, two inches tall. These big flints compel Osborn to change his opinions as to the size of the early man. He thinks "they were made and used by men of heavier build than that which succeeded them. Whether made by an exceptionally big race or by men of the modern size, the use of heavy big flint implements presents a problem. If used merely as hammers or as club-heads they would be unwieldy and would not require any special shaping. The only suggestion I can offer as to their use besides that of pounding or breaking into the cavities of the bones of large animals in order to extract marrow, brain, etc., is that they were employed either affixed to a handle or held by the two hands for the purpose of breaking a hole in the ice on the surface of a lake or marsh pool."

These quotations are not original with Osborn. He ascribes them to E. Ray Lankester.

At any rate they constitute the "evidence" of the existence of the Foxhall man of Ipswich.

Surely Professor Osborn cannot be unfamiliar with the work of M. Adrien Arcelin, the well-known geologist of Macon, who discovered numerous so-called "flints" made by chipping, due not to the hand of man or the large brain of man, or any Foxhall creature of Ipswich, but to the accidental shocks sustained by one stone against another in the countless overturnings and movements to which the strata had been subjected during long ages of geological time.

Arcelin describes how he has actually surprised nature in the very act of fabricating these flints in an abandoned quarry worked in an Eocene deposit, explaining the crackled surfaces as the result of atmos-

pheric action and the action of hot springs charged with silex.

Arcelin grants that some of these flints may have been caused by fire, but insists that fire does not imply the intervention of man in their production. It is quite possible that volcanoes were spitting fire long before the creation of man, just as they continue to spit fire to this day.

Concurring with Arcelin are M. d'Ault de Mesnil, M. Paul Cabanne, and our own American geologist, G. Frederick Wright. The latter declares, "Man and the Glacial Period," p. 370, that the so-called Thenay flints are the result of natural causes and are not the products of human intelligence and labor. He bases his convictions "upon the experience of many years spent in the study of flints broken naturally, as well as artificially, and upon a careful examination of Bourgeois's collections."

When we boil down the Foxhall man of Ipswich, the residue is even less than that which remained of the Piltdown man when the scientists themselves, separating the chimpanzee mandible from the human skull-cap, robbed the creature of a muzzle that ill became him.

Osborn himself once confessed an uneasy doubt as to the decency and propriety of associating that chimpanzee mandible with that human brain-pan, but he now declares: "The writer desires not only to recant his former doubts as to the association of the jaw with the skull, but to express his admiration of the great achievement of his life-long friend, Arthur Smith Woodward, in finally establishing beyond question the authenticity of the Dawn Man of Piltdown."

Note on Rhodesian Man

In the *Atlantic Monthly,* April, 1922, G. Elliott Smith not only puts the ape-man of Java and the Piltdown man of England into respectable society as genuinely unblemished missing links, but he refers also to "the fossil man of Rhodesia" as possessing a face "more definitely primitive and brutal than that of any other human being, living or extinct, that is at present known. The enormous eyebrow ridges are bigger, even, than those of the most archaic member of the human family, the Javan Ape-Man; and in the extent and form of their lateral extensions, *they recall the condition found in man's nearest simian relative, the gorilla. The nose of the Rhodesian man was definitely more ape-like than that of Neanderthal man.*" (Italics ours.)

At this point there is the suggestion of a thinly veiled doubt. The writer uses the "*perhaps.*" "Perhaps," he says, "also the Rhodesian man had a wide nose in comparison with which the Negro or the Tasmanian's would seem narrow." "Perhaps" is always good!

Elsewhere appears another doubt to blur the gorilla vision. The writer says: "The canine teeth did not project in the ape-like manner of those of Piltdown man."

But there is no doubt in the expression, "Nature has always been reluctant to give up to man the secrets of his own early history, or, perhaps, unduly considerate of his vanity in sparing him the full knowledge (such as is possessed by G. Elliott Smith) of these less attractive members of his family, who too obviously retain *the mark of the beast.*" (Italics ours.)

We have seen that the Neanderthal man is classified halfway between the anthropoid ape and the real human being. G. Elliott Smith goes farther than this

by declaring that "the Rhodesian man is a half-developed Neanderthal man," thus more securely tying up the human race with the ape.

Of course this throws the Rhodesian man far back into pre-human history, and if there is any evidence to show that this view of the defunct gentleman is untenable, it must be ignored.

G. Elliott Smith is greatly troubled by the fact that the leg bones prove conclusively that the Neanderthal man (who happened to be a woman) walked erect, like Lloyd George or Warren G. Harding. This fact he will not permit to trouble him unduly, "For," he says, "if the most ancient and primitive member of the human family walked erect, the (assumed) erectness of Rhodesian man cannot be fatal to the claim to regard him as primitive." The word "assumed" in parentheses is quoted from Smith.

Precisely because he can't be regarded as primitive in the sense of great age, G. Elliott Smith, while astonishingly positive in all his other opinions, makes it very clear that the ape-man evolutionists do not intend that their opponents shall marshal the true and positive facts of the case against any sacro-sanct theory which demands great age.

He insists that we do not possess a single "scrap of information as to the date, either absolutely or relatively, to other human fossils when the Rhodesian species of man lived and became extinct."

Unfortunately for the scientific dignity of this gratuitous assertion, there is positive evidence to prove that the Rhodesian man, who continues to remain a woman, lived in comparatively recent times, and in connection with this proof one finds reason to be disturbed by the discovery that in cataloguing the bones of the Broken Hill mine, G. Elliott Smith entirely omits, as if they had no existence, all reference to the clavicle (collar

bone), to the fragment of a scapula (shoulder blade), and to the piece of coccyx joined to several sacral vertebræ (base of the spine).

Of these not a word is said, and in the discreet silence thus maintained, there is no call for a labored explanation. The simple fact is that these bones are so wholly and unmistakably human and *modern* that the most discreet policy for the evolutionist to pursue with respect to them is the policy of Sir E. Ray Lankester, who tells us that in all discussion of the Piltdown man it is wise to keep the human cranium and chimpanzee mandible *apart*.

Perhaps Professor Smith would find it profitable to refer to the *Revue des Questions Scientifiques,* Louvain, January 20, 1922, for some of the details that he has so obviously found it inexpedient to discuss.

How does he propose to treat the stone implements, the pestle and the millstone for grinding grain, which were found with the Rhodesian bones? The South African Bushman of today makes use of stone implements exactly like those found in the Broken Hill cavern. Here is the very kind of evidence applied by palæontologists in all other matters as an index of age. Surely they do not propose to dismiss it in this case merely because it fixes the age of the Rhodesian man as extremely modern, when what they are looking for is proof of great antiquity.

Another proof of the recent origin of the Rhodesian relic is found in the fact that the animal bones discovered with the human skull and the other human bones, not mentioned by Professor Smith, are the bones of modern animals—the lion, hyena, elephant, rhinoceros, horse, antelope, gnu, etc.

What does Professor Smith mean by closing his eyes to these glaring refutations of his theory? There is not only nothing in the bone deposits to suggest great

age, but there is much to indicate that the Rhodesian man, or woman, fell into the heap at a comparatively recent date.

Even Professor Smith himself, speaking of a cleft in the cave and of the manner in which the human Rhodesian got into it with the Rhodesian animals, makes a strange admission. He says: "But the cleft (in the roof of the cave) does leave open the possibility of the human beings having fallen into the cave at a more recent period."

Here we are struck by overwhelming evidence of the recent origin of the Rhodesian skull. None of the human bones are fossilized, although all the bones of the modern animals found with them are completely fossilized. This fossilization must have taken place at a rapid rate on account of the immediate proximity and abundance of extremely active salts of zinc.

Why is the Rhodesian skull not in the least fossilized? Professor Smith Woodward expressly emphasizes the fact that it is not at all fossilized. This absence of fossilization is extremely important. It proves conclusively that the human bones got into the cave at a very much later date than the bones of the modern animals among which it was discovered. So completely has the gelatine and other organic matter of these animal bones been replaced by phosphate of zinc that the bones themselves are used as ore and are sent by tons to the smelters.

Furthermore, inasmuch as the Rhodesian skull was in close and intimate contact with very active mineral salts, is it not asking Mother Nature to confess a whimsical, if not a miraculous, mood in making a mysterious and inexplicable exception of the human bones for no other purpose than to prevent their fossilization?

The attempt made by the newspapers to create the impression that the skull was found more than a hun-

dred feet below the ground suggests that the Rhodesian man was buried under successive sedimentary deposits, a fact which, if true, would lend weight to the theory that he was very old.

It is indeed true that he was found in a cave, as reported by William Harris, who was at the mine at the time of the discovery, by native laborers who brought the bones to their overseer, a white man, and then went back to their digging.

It is also true that it was not until some time later that the managing director of the Broken Hill mine, Ross Macartney, recognized the importance of the discovery and gave orders to stop work at that part of the mine, although Professor Smith Woodward has made the mistake of giving credit for the discovery (*Nature,* November 17, 1921) to W. E. Barron, a New Zealand engineer, who "was so fortunate as to discover and dig out of the earth a nearly complete human skull."

At any rate, the Rhodesian man was found in a cave, the roof of which had at one time been more than a hundred feet thick. What effect could the thickness of the roof have produced upon the age of the contents of the cave? Had it been a thousand feet thick instead of a hundred, it would have made little difference to the Rhodesian man who tumbled through the cleft, except for the bump at the end of the fall.

But, regardless of the thickness of its roof, what were the pestle and the millstone doing in that cave? Certainly the millstone proved the existence of grains to be ground, and a knowledge not only of agriculture, but of porridge making and possibly of bread baking.

Why does Professor Smith ignore the millstone? Why does he ignore the pestle? Does not the latter suggest that the Rhodesian man knew how to crush materials to be used for coloring purposes? Does this

not mean that in addition to his knowledge of agriculture and milling, he had also some ideas of art?

The suggestions involved, though naïvely dismissed by the professors, can hardly be reconciled to the habits of life of any prehistoric, ferocious ape-man such as is classically pictured by Professor Knight as a killer armed with a murderous club.

Again on the question of age the ape-man evolutionists are compelled to run to a cover of their own making. The tibia (shin bone) is long and thin, entirely modern in type. The two ends of the femur (thigh bone) are precisely like those of a well formed adult of today. The sacrum (formed by the coalescence of five vertebræ) presents no extraordinary features. If it did, something would be said on the subject.

The skull itself exhibits some very modern characteristies. The teeth, as has been noted, are badly decayed. Dental decay is unknown among the palæolithic Europeans. The occipital orifice is exactly like that of modern man, so situated as to assure an upright position to the head without any forward inclination, such as is the distinctively brutish characteristic of all apes, without exception.

The third molar, as in the case of modern man, is notably smaller than the second. The thickness of the skull does not differ from the European skull of 1922. We have already had a picture of the beautiful palate, perfectly vaulted, entirely human, well adjusted for articulate speech, compared even with the voice-box of a professional singer.

The eyebrow ridges are indeed heavy and the slope of the forehead would never suggest the skull of Bismarck.

If the evolutionists could only confine their discussion to these features of the Rhodesian skull, wiping out all the contradictions which honest science compels

them to heed, they would have less of a puzzle to begin with and a better reputation at the end.

Even Professor Smith remarks, as if chilled by the necessity, that the cheek bones entirely lack the highly-to-be-desired canine fossæ which would have given gorilla-like fangs to his new toy. One can hardly understand his references to the gorilla-like nose when it is learned that the nasal bones are distinctively and perfectly human.

In the meantime, E. P. Mennell and E. C. Chubb have described the stone implements found among the Rhodesian bones. Why does Professor Smith say nothing about them? The answer to this question, with a deadly bearing upon the subject of scientific bias, might be illuminating.

Note on Triassic "Shoe"

In March, 1922, John T. Reid, member of the American Institute of Mining Engineers, and mining director of the Nevada United Mining Company, brought to New York, where it was exhibited at the Herald Square Hotel, the "fossil sole" of a shoe or sandal, which, according to the orthodox methods of estimating age by geological processes, must be set down as between 36 and 360 million years old.

Obviously the specimen caused no little consternation among the scientists who examined it. The fossil was discovered by Albert Knapp, an employee of the mining company, on the eastern slope of the West Humboldt Mountains, Pershing County, Nevada, at a spot on the north slide of Buffalo Peak, about twenty-five miles due easterly of the town of Lovelock.

There can be no doubt that the rock in which the fossil is imbedded is Triassic. The whole formation of which it was a part is described as Star Peak Tri-

assic in the records of the Fortieth Parallel Survey, mapped by Clarence King, the geologist in charge of the survey conducted under the supervision of the War Department, 1873, and reported in nine volumes published by the Secretary of War.

Imposed upon this piece of Triassic rock, marked with veinlets of calc-spar characteristic of the blue limestone of the Triassic stratum, and slightly impressed into it, is the sole of a child's shoe corresponding to No. 13 of the modern shoe.

The sole has been completely silicified and is harder and more compact than the rock itself.

When John T. Reid, the first to recognize its importance, brought the specimen to the metropolis, he had no idea that he was about to upset not only all the conventional theories as to the age of the world, but all the opinions of living evolutionists. A human fossil imposed on Triassic rock either means that the system of judging age periods, as far as geologists are concerned, is now and has been wholly and preposterously absurd, or that a Triassic shoemaker manufactured shoes in Nevada some thirty millions of years before the first monkeys appeared on earth.

Out of this ridiculous muddle it can be argued that inasmuch as man could not have descended from a creature that did not come into being until some 30,000,000 years after man's arrival, that creature must have descended from man. To complete the absurdity, we are confronted with an alternative for the "ape-origin of man," and must now worry over the "man-origin of ape."

The conservative New York *Times,* Sunday, March 19, 1922, announced that "the age of the shoe was millions of years"; that "it amazes scientists"; that "the stitching is perfect, but that man didn't exist when it was made, according to the professors."

Photo by Underwood & Underwood from bones owned by the author.

Artificial upright position of adult gorilla, with head mounted at artificial angle. Note curves of femur (thigh bone), spines on cervical vertebræ above scapula. Such massive spines have never been found on any human skeleton. It will be observed that the differences between the pelvis of the gorilla and the pelvis of man are as radical as the differences between their skulls and spinal vertebræ. Again, compare skeletons of man and chimpanzee opposite page 56.

Photo by Underwood & Underwood from bones owned by the author.

Artificial upright position of gorilla. Head mounted in natural position. Note cervical spines on vertebræ and massiveness of every bone as compared with human. After noting "feet" compare cervical spines of gorilla with dorsal spines of horse. For this comparison see illustration opposite page 166.

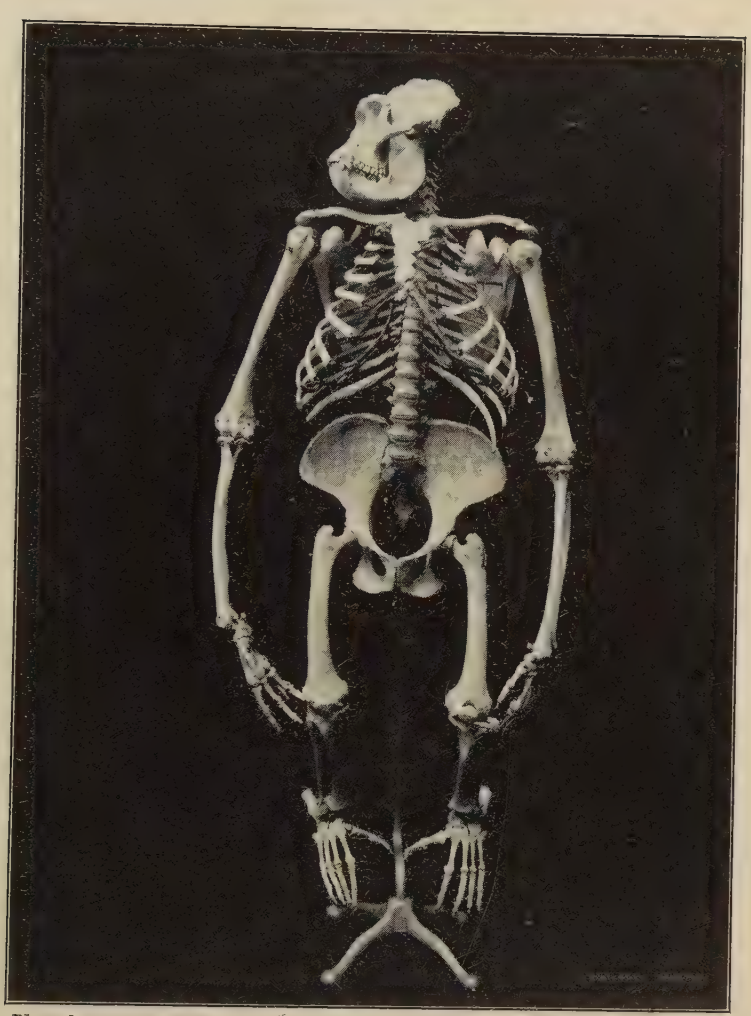


Photo by Underwood & Underwood from bones owned by the author.

Artificial upright position of gorilla. Contrast pear shape of gorilla thorax with conical shape of human thorax. Note that the difference between the gorilla pelvis and the chimpanzee pelvis is as extraordinary as the difference between the gorilla pelvis and the human pelvis. Again, refer to illustration opposite page 56.

Photo by Underwood & Underwood from bones owned by the author.

Skeleton of gorilla mounted in natural walking position. Compare length of arms and legs. Note opposable thumb on "foot" where big toe ought to be. Note cervical spines on vertebræ above shoulder. Note massiveness of bony structure in all its parts.

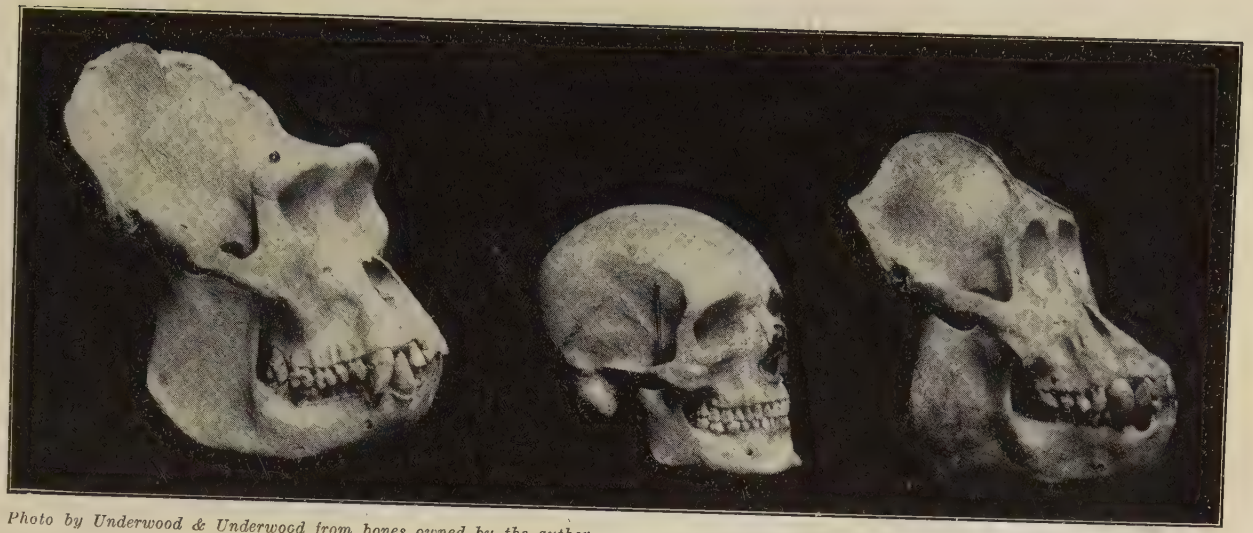


Photo by Underwood & Underwood from bones owned by the author.

Three-quarter profile of gorilla (left), man (center), orang (right). The sutures plainly visible in the skull of the human adult are not to be found in the ape skulls. The skull of the human possesses six membranous intervals called "fontanelles." The ape skull has no fontanelles, not even in the embryo before birth. The morphologists of evolution are profoundly bewildered by the lack of what should at least be the vestiges of fontanelles in the young ape. The ape molars are larger at the rear. In man the whole order is reversed. Man's jaw is beautifully arched. The ape's is a parallelogram. Evolution has nothing to say on these subjects.

Photo by Underwood & Underwood from bones owned by the author.

Compare "forehead" of man with crested battlements that might have been the "forehead" of gorilla. Note nasal bones and lack of them. Note canine fossæ and lack of them.

Photo by Underwood & Underwood from bones owned by the author.

Skulls of gorilla (left), man (center), orang (right). Where are the "resemblances"? The differences speak for themselves. The genuine skulls compared with Haeckel's illustrations disclose the deliberate frauds of the Jena schematizer.

Photo by Underwood & Underwood from bones owned by the author.

Skulls of gorilla (left), man (center), orang (right). If you can find "resemblances" please note them carefully and transmit your discovery to the monkey-men of the American Museum of Natural History. Their need of such discoveries is quite desperate.

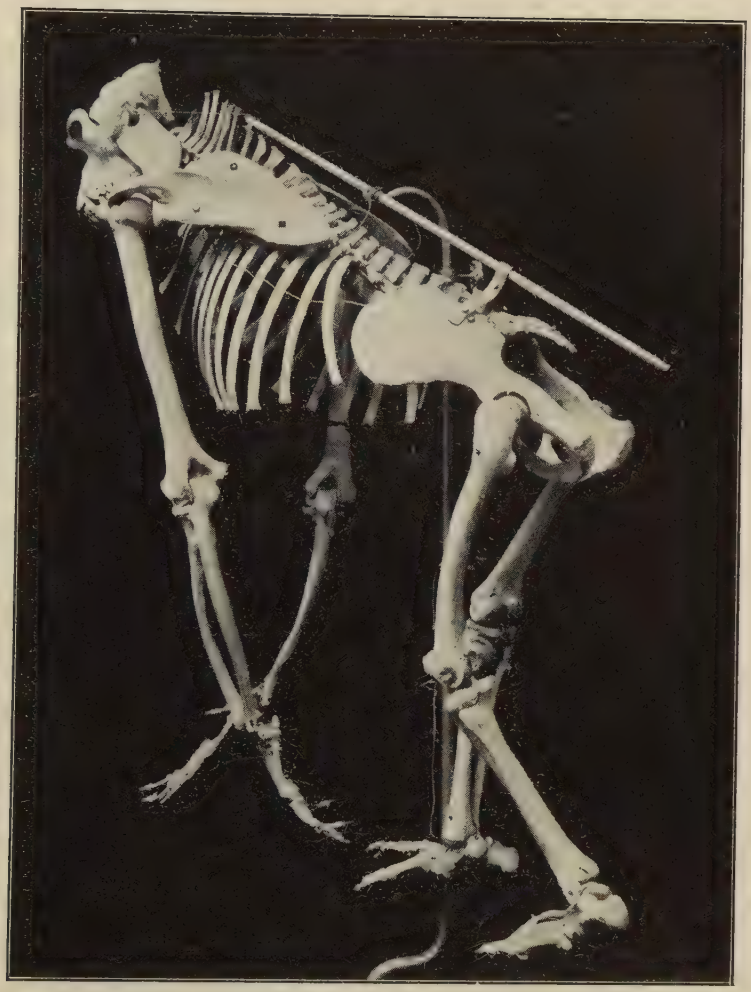


Photo by Underwood & Underwood from bones owned by the author.

Skeleton of gorilla in natural walking posture. Again, compare cervical spines of this creature with dorsal spines of horse opposite page 166. Also compare with Haeckel's schematized illustrations of skeletons of man, gorilla, orang, chimpanzee and gibbon if you would fully appreciate the grotesque character of the frauds to which the Jena "scientist" was capable of descending.

Photo by Underwood & Underwood from bones owned by the author.

Skeleton of gorilla in natural walking posture. Again refer to American Museum of Natural History Guide Leaflet No. 36, p. 41: "A careful study will reveal a most striking similarity between horse and man in general structure, the differences being simply modifications of a common plan." Substitute "gorilla" for "man" and you will observe the same general structure running through the whole mammalian order, precisely as the architect employs supporting walls and roof for wood shed, barn, cottage, palace or cathedral. "Resemblances" mean common plan, not relationship.

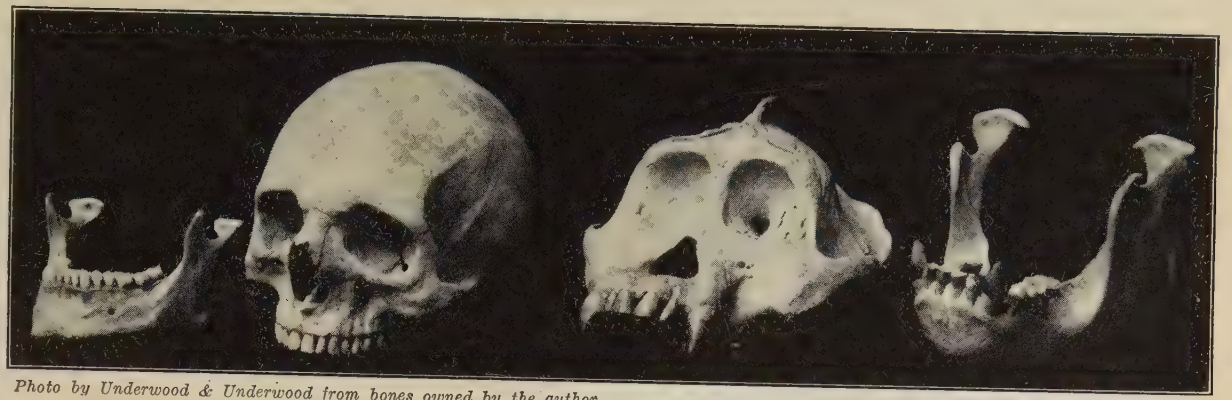


Photo by Underwood & Underwood from bones owned by the author.

Skulls and jaws of man and orang, each resting on its own base. This quartet of bones suggests a passage from Hamlet—"What a piece of work is man! how noble in reason! in form and moving how express and admirable! in action how like an angel! in apprehension how like a God! the beauty of the world! the paragon of animals!" Singularly not a word of this applies to the ape. The ape is without reason; is not noble; cannot dwell on the infinite; in form and moving is clumsy and awkward; is unlike any human conception of an angel; in apprehension can neither form concepts nor draw deductions from them; is wholly lacking in beauty; is the paragon of brutishness and bestiality.

Photo by Underwood & Underwood from bones owned by the author.

Jaws of orang (left), and man (right). Relationship of size has not been tampered with. The Piltdown skull-cap was equipped by the reconstructionists with a jaw similar to this, yet the Piltdown freak is still exhibited by Professor Osborn at the American Museum of Natural History as genuine. One jaw is tusked, gross and massive; the other is human.

Gorilla skull-cap and human skull-cap as seen from slightly different point of elevation. No such pictures have ever been published before.

Photo by Underwood & Underwood from bones owned by the author.

Skulls of orang (left), man (right), with jaws removed. Each skull rests on its own base. Like all the other photographs used in these illustrations, they were taken on the same plate through the same exposure. They have not been schematized or exaggerated in their differences by any trickery of the camera. They were made by Underwood & Underwood at the desk of the author. The objects photographed were not manipulated to bolster up a theory, but were pictured, exactly as they stand, to disclose the simple truth.

Profile of gorilla skull and human skull resting squarely on lower jaws. The gorilla skull crest is not in shadow, thus creating the illusion of a sizable brain case rather than the keel of a Lipton yacht.

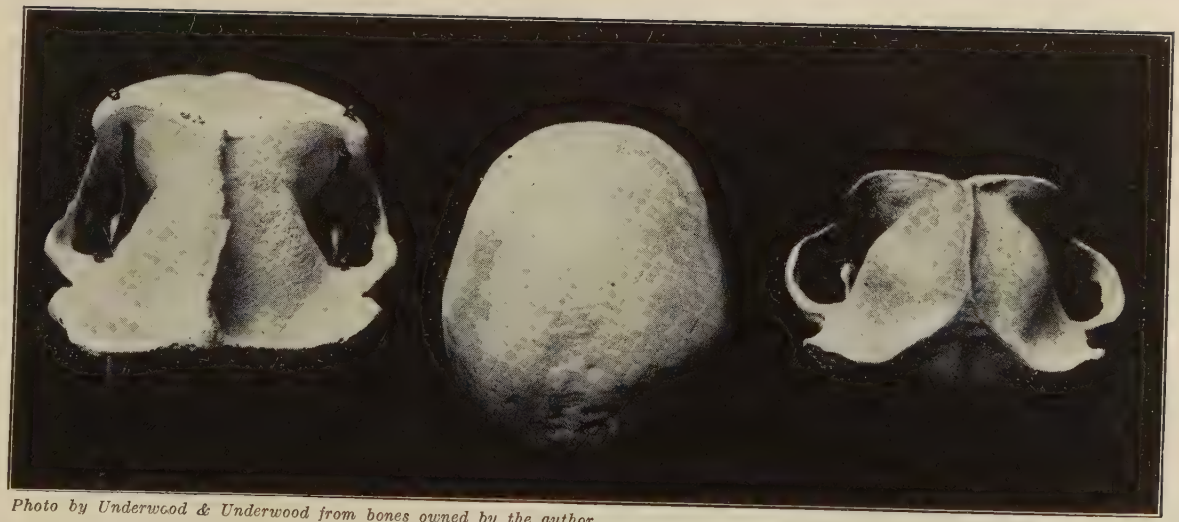


Photo by Underwood & Underwood from bones owned by the author.

Top view of skulls looking down over eyebrow ridge. Gorilla (left), man (center), orang (right). No text book of biology or zoölogy has ever shown such illustrations. The tops of these skulls are the tops of the identical skulls employed in all these appendix illustrations. Compare them with the conscienceless drawings used by Haeckel in "Evolution of Man," p. 298 of that work. No wonder the monkey-men evolutionists deliberately avoid such honest pictures in their texts.

Photo by Underwood & Underwood from bones owned by the author.

Base of orang skull at bottom, man at top. Note the median suture of the palatine vault, the posterior nasal spine, the nasal septum, the internal and external plates, the scaphoid fossa, the zygomatic process of the temporal bone, the basilar process of the occipital bone, the mastoid process, the curves of the occipital bone. Why do the text-books of biology and zoölogy contain no such pictures?

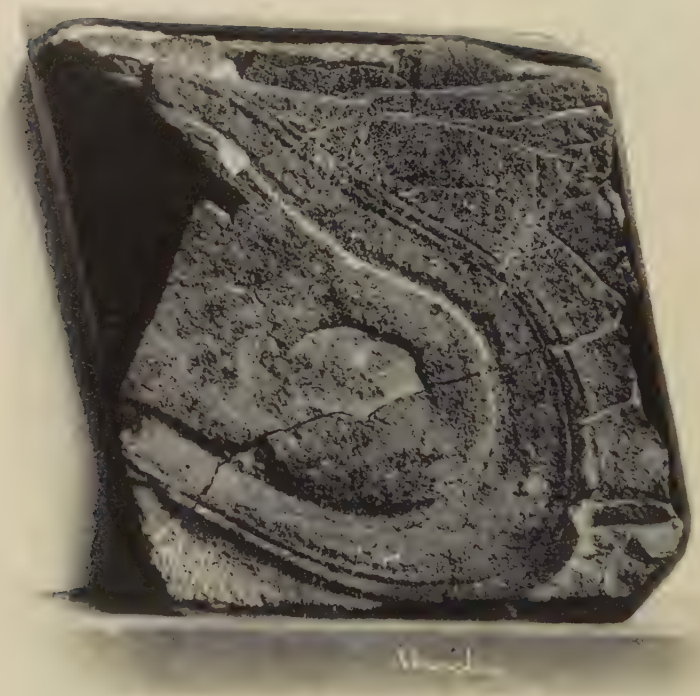


Photo by Champlain.

Triassic Shoe Sole Fossil. Note stitches remarkably preserved along outer edge of welt, particularly so on upper left-hand margin and lower margin a little to left of center.

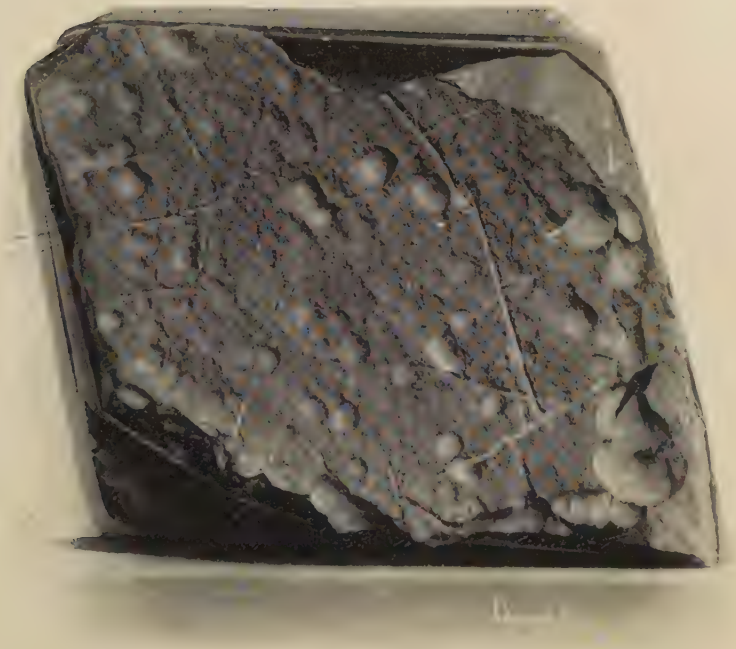


Photo by Champlain.

Underside of Triassic rock bearing shoe sole fossil. Note impressions left by early forms of life from the Triassic seas. Geologists, mineralogists and palæontologists refuse to recognize this specimen. The difficulties presented by it are literally beyond rational explanation, yet as a fossil it is incomparably more definite and significant than so many of the weird and meaningless flints from which "scientific" deductions are constantly drawn.

Dr. William D. Matthew, palæontologist of the American Museum of Natural History, is quoted as saying that "it is the most perfect piece of natural mimicry that I have ever seen, but that is all. It is not the work of man. Man has not been in existence much more than 500,000 years or so on earth, and it is not believed that man has existed on this continent for more than 30,000 years. That is, of course, only an approximate guess.

"The Triassic formation in which this appears to have been found might have been 300,000,000 years old. Such finds are made every now and then, though I have never seen anything so extraordinary as this."

Dr. James F. Kemp, professor of geology at Columbia University, is quoted as saying that "the object is the most surprising imitation by nature of the workmanship of man which has ever come to my attention, but that it is absolutely impossible that it could be a genuine fossil because the evidence is overwhelming that the career of human beings on earth is not over half a million years."

Dr. Herbert P. Whitlock, curator, Department of Mineralogy, American Museum of Natural History, pronounced it "a very remarkable specimen"; the most deceptive" he had ever seen.

Obviously any authoritative recognition of this curious fossil will upset all Darwinian theories. Yet the sole of the shoe is so obviously the sole of a shoe, with its bevelled welt and hand-stitched seams, that no observer can doubt for an instant either its origin or nature. It certainly is the product of a human hand, and was worn on a human foot.

The New York *Times* says: "It would fit nicely a boy of ten or twelve years. The edges are as smooth as if freshly cut. The surprising part of it is what seems to be a double line of stitches, one near the out-

side edge of the sole and the other about a third of an inch inside the first. The 'leather' is thicker inside the inner welting and appears to be slightly bevelled, so that at the margin, half an inch wide, which runs outside, the sole is something like an eighth of an inch thick. The symmetry is maintained perfectly throughout. The perfect lines pursued by the welting, and the appearance of hundreds of minute holes through which the sole was sewed to the shoe are the things which make the object such an extraordinary freak in the eyes of the scientists who examined it.

"The edges are rounded off smoothly, as if it were freshly cut leather from an expert cobbler. The stone to which it is attached is about the size of a brick. The heel and part of the sole appear, the toe-end being missing."

"It is not extraordinary," said Professor Kemp, "to find natural imitations of bones for man's handicraft. They turn up frequently. But this is by far the most perfect thing of the kind that I have ever seen. On the other hand, I have no hesitation in saying that it is not a fossil, but an accident. If it were a fossil, it would probably be 10,000,000 years old, or older, because it appears to come from a Triassic formation. This is so absolutely certain that I told Mr. Reid that any detailed study of the thing by microscope or otherwise is useless."

Mr. Reid himself declares that "the scientists simply take their stand that the Darwinian theory is so completely proved that man could not have possibly existed during the period described as Triassic, and that therefore no amount of evidence would convince them that it is a genuine fossil. They are so wedded to their theory that they must look upon it as a freak of nature."

The writer, who was privileged to have the specimen

in his possession for a period of two weeks, caused it to be photographed in its natural colors by the process known as Autochromes Lumiere, thus preserving for all time some of the extraordinary characteristics pronounced "freakish" by men of science.

Micro-photographs taken at the Rockefeller Institute bring out unmistakably the evidences of a very regular and very precise method of stitching. In addition to the color of leather, in sharp contrast to the blue limestone base, another striking feature of the fossil is that the right-hand side of the heel is slightly worn down, resembling what takes place in the wear of the modern shoe.

Moreover, there is a slight depression in the rock itself, showing that it was in the formative stage of pliability at the time the sole was impressed upon it. Had the rock not been soft at that time, the accommodating impression could have been made only by the use of a mechanical instrument.

Professor Matthew, protesting against the publicity given to his views, declared in a written communication to the New York *Globe,* March 21, 1922, that he had "said nothing about evolution, but had explained to Mr. Reid the utter impossibility of Connecticut shoe factories dating back to the beginning of the age of reptiles." Responding to a wholly gratuitous impulse to lug the writer into the controversy, he declared: "If Mr. McCann thinks himself a better judge of fossils than I am, he is quite welcome to his opinion."

To this the owner of the fossil replied: "Before I departed from the presence of Professor Matthew, I asked him these two questions: 'Is this a fossil?' to which he answered, 'Yes; it is.' 'Would you care to say that it is not the bottom of a shoe?' He answered: 'No; I wouldn't do that. It would remove any ques-

tion of doubt of the fossil being leather if we made a cross section for microscopic examination.'

"I suggested to the professor that his proposal involved the necessity of assuming that men living in the Triassic period really used leather in the construction of the soles of their shoes or sandals. The very existence of leather in the Triassic would prove the existence of the hides from which the leather was tanned. These hides would prove the existence of animals.

"The hopelessness of the puzzle was thus emphasized for the very good reason that the professors began their examination of the specimen with the conviction that there were no animals of any kind from which to obtain leather, or which might wear shoes back there in the Triassic.

"Their unwillingness to give this specimen adequate scrutiny, and their unwillingness to reserve pronouncing public judgment upon it is hardly what one might expect from scientific investigators.

"Professor Matthew said nothing about the utter impossibility of Connecticut shoe factories dating back to the beginning of the age of reptiles. No one ever suggested that a Connecticut shoe factory was operating in Nevada some 36,000,000 years ago. Had any shoe factory been operating in Nevada at that time, it would have been operating in Nevada, not in Connecticut.

"I have been careful in seriously submitting this Triassic specimen to the attention of scientific men to avoid always any suggestion of the frivolous or ridiculous, neither of which has any place in scientific considerations."

In the meantime, the senior member of J. & J. Slater, Fifth Avenue, New York, declares that "the

fossil sole is identical with the styles manufactured in Europe about 300 years ago."

Of course no one believes that man was on the face of the earth with the Trilobites in the Triassic, millions of years ago, nor can any one believe, who has seen this extraordinary specimen, with its extraordinary leather coloration, its extraordinary double-seamed welt extending from the instep around the heel, its very startling revelation of the fact that it was imbedded in a matrix of Triassic blue limestone at a time when the latter was still in the process of hardening, that it is "a freak of nature."

The explanation is to be found along other lines. But how is it to be found if the scientists refuse to heed the facts, a custom which they have not followed, when interpreting in their own astonishing way the significance of flints manufactured under their own eyes by Mother Nature as "proof that man lived hundreds of thousands of years ago"?

Note on "Fossilized"

That wholly unexpected and astonishing phenomena, of geological and physico-chemical character, can and do occur in short periods of time is well established.

In connection with the fossilization of the Triassic shoe sole, so-called, John T. Reid reported to the writer the discovery of a petrified body in a graveyard at Paradise Valley, Humboldt County, Nevada, declaring that the body had been in the ground but six years. The body had been that of the wife of a miner who, on her deathbed, had extracted from her husband the promise that he would remove her remains to the east as soon as he could.

At the end of six years he undertook to discharge

his promise. With great difficulty the body was exhumed in a completely petrified condition.

If the facts were as stated, it follows that within the short period of six years the body had been subjected to such a bombardment of mineral atoms as was necessary to the achievement of the extraordinary results reported.

Mr. Reid remembered that one of the persons who assisted in exhuming the body at Paradise Valley was one Willis C. Green, whom he had neither seen nor heard of "for six or seven years."

In an effort to corroborate or refute the report, the writer began at once to communicate with public officials in Nevada who might be able to locate "a certain Willis C. Green, who, while working at Swails Mountain some six or seven years ago, resided at Carlin, Nevada."

Under date of March 31, 1922, M. J. Keith replied to a letter addressed by the writer to Miss Mattie Keith, County Clerk, Elko County, Elko, Nevada, with the information that a Mr. Willis Green is the undertaker at Battle Mountain, Nevada."

This communication was received April 4, 1922, whereupon the writer sent a Western Union telegram to Mr. Willis Green, Battle Mountain, Nevada, which read as follows: "John T. Reid of Lovelock, Nevada, now in New York, informs me of your experience with a petrified body that had been in the ground but six years. Scientific interest urges me to appeal to you for facts and details. Will thank you to rush reply by wire collect."

Any jury in any court of law in America would accept the corroboration of the original report as made by Mr. Reid. It came in the form of a Western Union telegram and speaks for itself:

WESTERN UNION

TELEGRAM

RECEIVED AT 195 BROADWAY N.Y. 1922 APR 4 PM 8
C141SF 157 COLLECT NPR
BATTLEMOUNTAIN NEV 4

ALFRED MCCANN

NEW YORK GLOBE NEW YORK NY
REPLYING TO YOUR WIRE OF TODAY IN 1887 I WAS IN PARADISE VALLEY HUMBOLT COUNTY NEVADA PROSPECTING STOP I WAS ASKED TO ASSIST TO EXHUME THE BODY OF A WOMAN WHO HAD BEEN BURIED IN THE LOCAL CEMETERY OF PARADISE SIX YEARS PREVIOUSLY STOP THE FORMATION OF THE SOIL IN THE VICINITY IS A CEMENT LIME FORMATION STOP AFTER MAKING THE NECESSARY EXCAVATION WE FOUND THE BODY OF A WOMAN AND CHILD IN THE SAME CASKET BOTH BODIES SEEMINGLY HAVING PETRIFIED STOP THE WEIGHT OF THE BODIES WAS SO GREAT AS TO NECESSITATE THE USE OF AN IMPROVED DERRICK AND BLOCK AND TACKLE TO REMOVE THEM FROM THE GRAVE STOP THE HUSBAND OF THE WOMAN WHO CAUSED THE EXHUMATION IMMEDIATELY BOXED THE REMAINS UP AND SHIPPED THE SAME TO SOME POINT IN THE EAST STOP I DO NOT KNOW THE NAME OF THE PARTY BUT AM FAMILIAR WITH THE LOCATION OF THE GRAVE

WILLIS C GREEN

Under ordinary circumstances, had one not known the true history of these bodies, they could have been loosely but scientifically described as "fossilized." Moreover, they might have been 30,000 years old. Apparently fossils don't always tell the truth.

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